



MOTOR CYCLING

No. 108. VOL. XVIII.
TUESDAY, 24th SEPT.
1918.

Registered at G.P.O.
as a Newspaper.

FOR THE SERVICES



CARNARVON CASTLE.

LADY RIDERS tell us it requires no nerve to ride a Douglas—and there are thousands of lady Douglas riders on work of National Importance to-day. The safety, simplicity, cleanliness, and utter reliability of the Douglas Ladies' Model have made it the most popular ladies' motorcycle of the day, and its popularity will be greater than ever—after the war.

Why not write to-day for full particulars of the various Douglas Models? Post free on request to Department "A."

DOUGLAS MOTORS LTD.,
KINGSWOOD, BRISTOL.

39, Newman Street, London, W. 1.

Douglas

B RITISH **L** IGH TING & **I** GNITION **C** OMPANY LTD
MAGNETOS STARTING SETS MAGNETOS
204 TOTTENHAM COURT ROAD LONDON W. 1.

The Post War

?



N·U·T

NEWCASTLE — UPON — TYNE

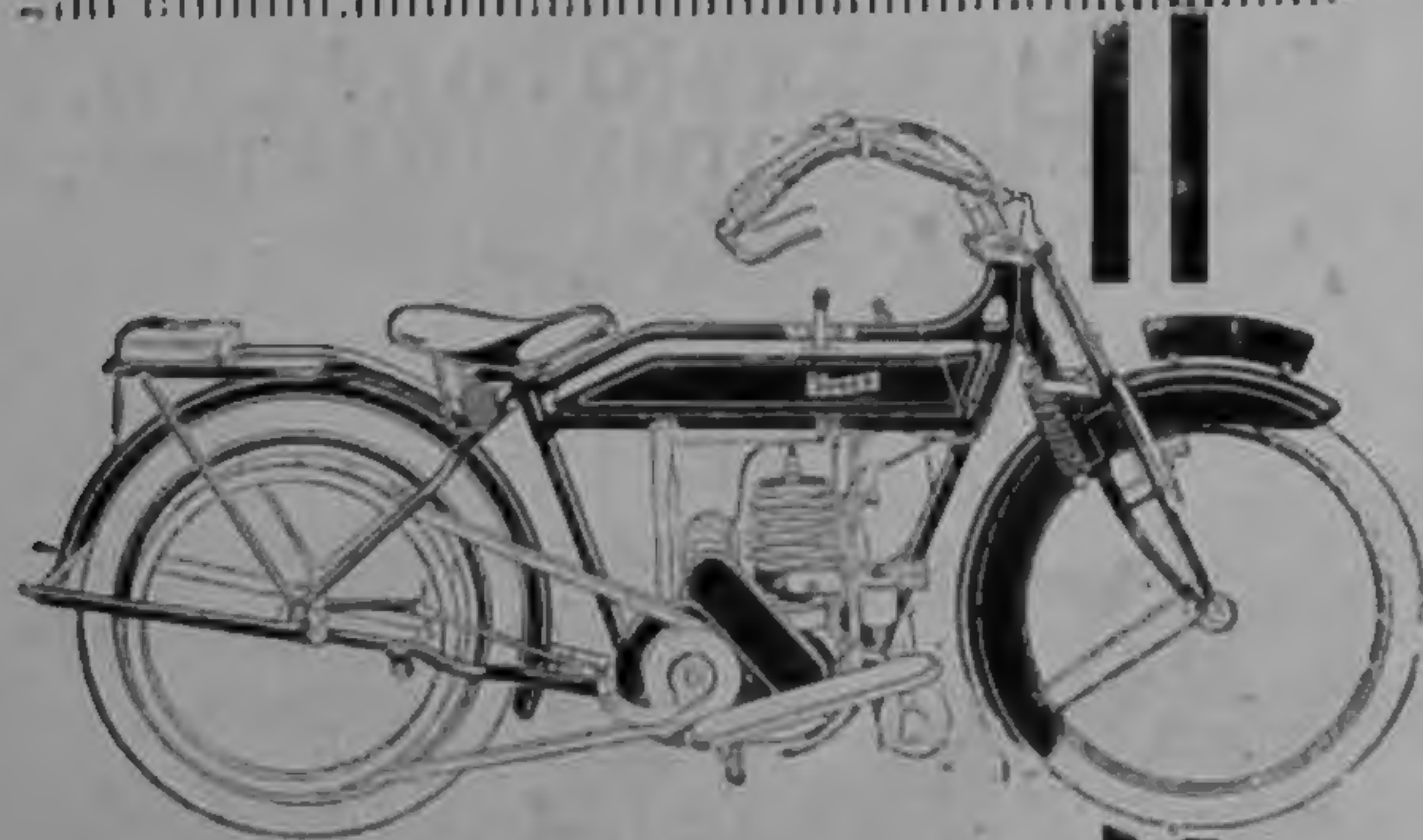
Whilst we cannot give deliveries at the moment of our Post-War Model, at all events it will prove a garr and also a doer. In pre-war times the N.U.T. Motorcycle carried off the leading honours on road and track, and we can assure our patrons that after the war we shall not be content to rest on our laurels.

Details on application.

The Newcastle-upon-Tyne Motor Co., Ltd.,
South Benwell — Newcastle-upon-Tyne



**LIGHT SOLO
Specification.**



Model B, 2½ h.p. Light Solo.

Critically compare the JAMES Lightweight Specification with that of any other contemporary model you like, and you will then realise why prospective post-war light soloists are so largely choosing it.

Cyl. cap., 226 c.c.; JAMES Countershaft 2-speed Gear; All enclosed Chain Drive to Countershaft; 24 in. or 26 in. Wheels optional; Comfortable Footboards; Rear Brake, heel applied; Exhaust release direct to Silencer; Lubrication, Forced Feed by Hand Pump to main bearings; Auxiliary Cylinder Lubrication by Oil in Petrol; Elegant Finish, Etc.

Ask us for full details—and note, that although mainly producing motorcycles for the BRITISH and ALLIED GOVERNMENTS, we still have a few available for civil use, and orders are being executed in rotation. Enrol on our "Earliest Delivery List" without delay.

THE JAMES CYCLE CO., LTD.,
GREET, BIRMINGHAM.

London Depot:
22, Holborn Viaduct, E.C.1.

B'ham Depot:
Broad Street Corner.



Fame Speaks

For many weeks I've eulogized, by word of mouth, the merits of my favourite "steed of travel"—the

CLYNO

THE Side-car Motor Cycle

—the pleasure it has given in the past, the duty it's performing "over there" to-day, the role it will fulfil in to-morrow's world of motoring.

Next week, and henceforth, for a time at least, I'll take the pen in hand and write my weekly message 'neath the title of "The Fables of Fame."

A fable, as you know, is a story or tale, intended to enforce some useful truth or precept. This being so, my task's a pleasant one, for knowing as I do the merits of The Clyno—the perfect combination of the Motor Cycle and Side-car—I can write with confidence of the service it has given, is giving, and will give, and with assurance of the usefulness of my remarks, can urge to-morrow's motorists to bespeak their Clyno now.

Briefly—very briefly, of course, you'll find below The Clyno Post-War Policy.

The CLYNO Post-War Policy—

1. Mass production of one Model (8 h.p.)
2. Competitive prices with any outfit of equal reputation.
3. Rotational after-war delivery.

Ask your Agent.

THE CLYNO ENGINEERING CO.,
Clyno Works, WOLVERHAMPTON.



THE FIGURE OF FAME



Harley-Davidson Anticipations

The return journey at the end of the holidays — enjoying to the full a glorious September day — and the old 'bus running as only a thoroughbred can.

74, NEWMAN STREET, LONDON, W.1.

The Tyre for the Flier.



PALMER

(DOUBLEDAY'S OF THE TYRE & RUBBER)

CORD TYRES

He revels in speed, does this intrepid boy of the air. And what more fitting than that the tyres which form the standard equipment of his aeroplane, should also be his choice of tyres for free-from-trouble travelling on the road.

THE PALMER TYRE, LTD.,
119-123, SHAFTESBURY AVE., W.C.2.
Motorcycle Tyre Depot—
103, St. John Street, Clerkenwell, E.C.





BEFORE
the
WAR

K.L.G. PLUGS

were recognised as the ONLY
plugs for aero and super-
efficient racing engines.

DURING
the
WAR

OVER ONE MILLION K.L.G. PLUGS

have been supplied to the
AIR SERVICES.

AFTER
the
WAR

The huge and ever-increasing
output of

K.L.G. PLUGS

will be available for the public.

SOLE
MANUFACTURERS

The Robinhood Engineering Works, Ltd.,
Newlands, Putney Vale, London, S.W 15.

Telephone: Putney { 2132
2133.

Telegrams: Kaelgee, Phone. London.



Men of Precision



No. 2.

S. J. H. Wilkes, B.Sc.,
Works Manager.

S. J. H. WILKES.

AN early appreciation by the "Precision" Works Manager, Mr. S. J. H. Wilkes, of the possibilities for competition work of high compression and fast running engines was one of the factors in obtaining that wonderful series of unbroken records by riders of Precision Engines which was so remarkable a feature of the hill climbs of 1912.

Mr. Wilkes' years of business have been devoted almost entirely to one house. His success has been built on the sure foundations of native ability, close application, and scientific training. On entering King Edward's High School, in Birmingham, he secured a Foundation Scholarship, and five years later he took a first class in his matriculation for the University of Birmingham, and there he gained a place in the Honours Division when taking his degree of B.Sc. in Engineering. He sought practical experience as a mechanic, first at the Wolseley Motor Works, and then with Messrs. Belliss and Morcom, Ltd. Eleven years ago he went to the Precision Works as draughtsman, and subsequently took charge of the drawing office. On the extension of the business he was appointed Assistant Works Manager, and eventually Works Manager, which position he still holds.

No man has a firmer faith in the sterling quality of Precision products; no man is better qualified to maintain their high level of achievement.



F. E. Baker, Ltd., Precision Works, King's Norton, Birmingham.





CONVERTING
A
BROUGH

TO RUN
ON HEAVY
FUEL.

Excellent Results From a Simple Fitment.

IN these days of want of the needful "juice," and the heavy cost of that most usual form of propulsive energy—petrol—it is distinctly a comfort to the pocket to be able to pour into one's tank anything that will effect an appreciable lowering of the running costs. The writer's machine, a 1916 T.T. Brough, fitted with a Binks three-jet carburetter, has been satisfactorily converted to run on paraffin or naphtha, not by the usual method of a hot air intake off either cylinder, but by the heating of the liquid itself when in the float chamber.

The general arrangement can readily be seen from the photographs. Starting is effected in the usual manner from a small tank carrying petrol which is led thence into the main petrol pipe. As soon as the engine is under way and warmed up the petrol tap is turned off and the tap from the main tank opened. The latter must naturally be turned off and the petrol tap on before stopping the engine; otherwise there will be great difficulty in re-starting.

In order to fit up this heating arrangement, the chief requisite is an empty tobacco or cigarette tin of sufficient size to cover the float chamber and leave a space for the circulation of hot gas led from the silencer. A slot (A) is cut in the side of the tin to enable it to be slid up into position round the float chamber, and holes (B) are cut eccentrically in the lid and in the bottom to admit the needle valve cap and petrol

union; the top hole must, of course, be vertically above the bottom one. The tin itself should be cut to such a length that, with the lower portion held in place by the petrol union nut and a washer, the sides of the tin will allow the lid just to cover the lid of the float chamber, only the end of the needle valve cap being allowed to project through for the purposes of flooding.

A hole must also be cut through the tin (C) near the bottom on the side nearest the crankcase for the pipe from the silencer, and a vent (D) for the gases near the top on the opposite side, thus ensuring complete circulation.

The tin should now be placed over the float chamber, held in position by the petrol union nut and a suitable washer, and soldered to the body of the carburetter, which should then be replaced in position

on the induction pipe, so that the connecting copper tube from the exhaust box may be bent to the required shape. The tube is attached to the silencer, which in this case is an aluminium casting, as follows:—The silencer is drilled and tapped and a brass union is screwed into it.

The copper tube, which should be of $\frac{3}{4}$ in. section, is then fitted with a nipple and nut in the same way as the petrol unions, and bent to the required shape, when it should be firmly soldered into the tin. Having secured connection at both ends, it is essential to lag the whole copper pipe with a

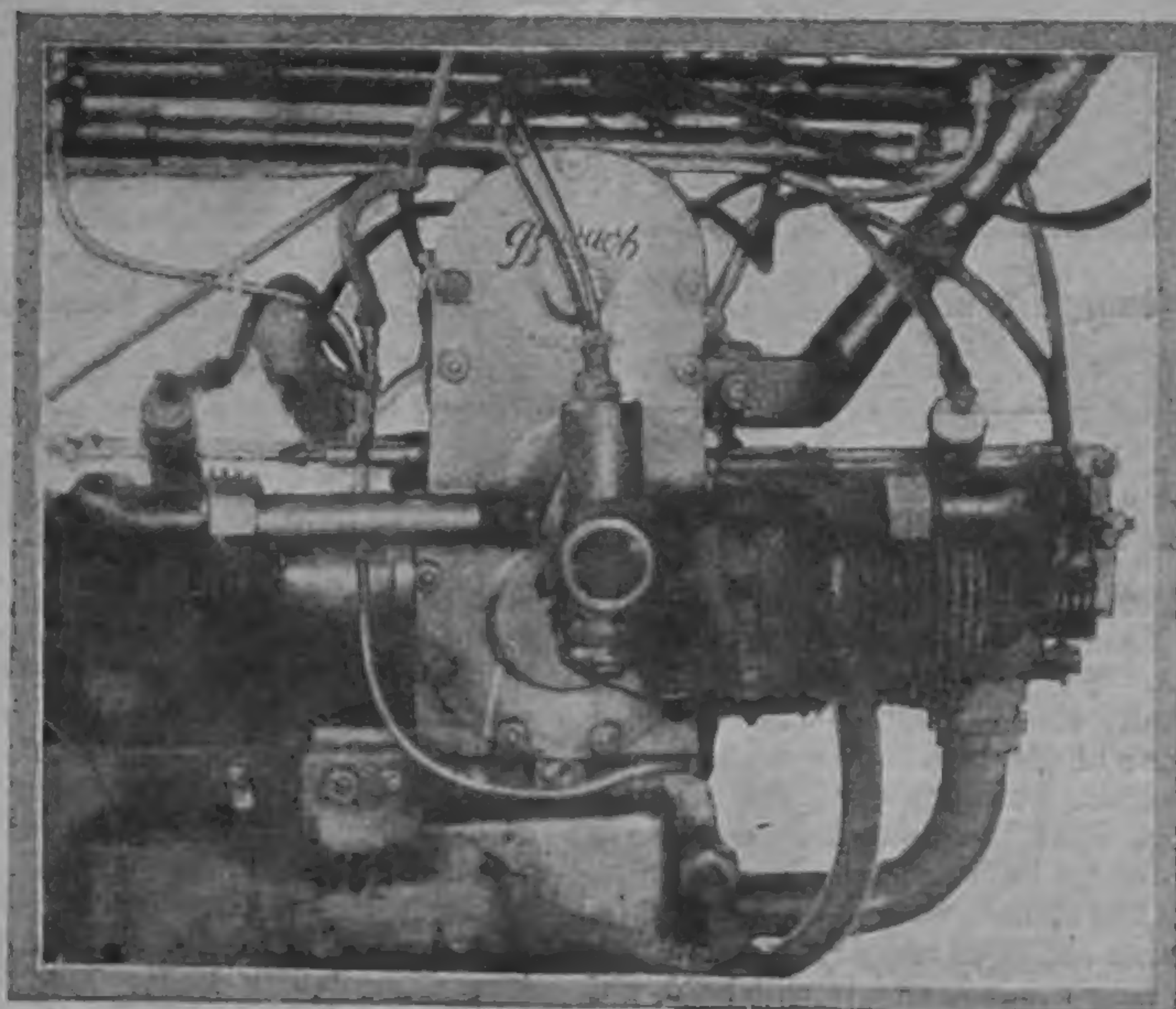


Fig. 1.—The complete vaporizer in position.



A Sunday morning service in an aerodrome in France. The chaplain is seen conducting the service from the observer's seat of an aeroplane.—Official photograph.

FLYING THE ATLANTIC.

A Review of the Possibilities and Probabilities of Its Achievement.

EXPERTS, both in this country and in America, are agreed that the flight across the Atlantic will be accomplished by an aeroplane within the next few months. No sooner has it been accomplished for the first time than it will very rapidly become the regular method of delivering the big bombing machines which our Ally is building, and very shortly we shall be looking back upon the idea of packing such machines for water transport, and causing them to take up unnecessary ship space, with much the same amused tolerance as that with which many of us now view one of the conditions of the Military Trials in 1912, which laid down that each of the competing machines was to be capable of being packed in a case of certain specified dimensions.

There seem to be two outstanding problems yet to be satisfactorily tackled before the transatlantic flight becomes a mere matter of routine.

The first is the ability of the Americans to build an aero engine which can be relied upon to run for 20 to 30 hours with absolute certainty; so far the Yankee machines have not quite reached such a state of perfection, but every hour's flying experience gained with their engines will bring it nearer.

The second is the ability of the pilot or pilots satisfactorily to navigate their machines without getting badly off their course. This difficulty may be met either by directional wireless or by the placing of a chain of patrol boats along the route selected, at intervals of some 300 miles, one from the other.

There are two routes which may be adopted. In both cases a start would be made from St. John's, Newfoundland. In the one case, a straight flight would be made direct to Ireland, a distance of 1860

miles; in the other, a more southerly route would be taken from St. John's to the Azores, a distance of 1195 miles. A landing would be made there, and the fuel tanks would be refilled. The machine would then make Lisbon (Portugal), a distance of 850 miles, and after again filling up would fly either to an English base or direct to one of the battle fronts.

The direct route to Ireland seems the most feasible for the initial attempt, its length notwithstanding, as there appears to be some trouble about finding a suitable landing ground in the Azores, which would necessitate the use of floats on the machine to enable it to alight in a harbour. It is difficult to see how the huge floats which would be necessary could be satisfactorily attached to a land machine without creating a lot of unnecessary head resistance. A properly-designed seaplane or flying boat might perform the task satisfactorily, but this is not the type of machine which is most pressingly needed at the moment.

The machine chosen for the initial attempt will probably be equipped with two engines, each of 350 h.p., and will be capable of a speed of 85 miles an hour in still air. The prevailing winds will be in its favour, and may add some 10 or 15 miles an hour on to this speed. There is this important point, however, to bear in mind. For every hour that the machine is in the air it is being lightened by the amount of fuel consumed. The effect of this will be to cause the machine to climb steadily if the power output of the propelling plant is left untouched. In actual practice the engines will probably be gradually throttled down. This will ease the strain on them, but will tend to slow up the machine, so that a 'plane

Air Arts and Crafts (contd.).

leaving Newfoundland at a speed of 85 miles per hour with a power output of 700 b.h.p. might complete the flight at 65 miles per hour on a power output of 400 b.h.p. This will slightly increase the total time of the trip, but might reduce the total fuel consumption; by how much it is impossible to say without referring to the figures for the consumption of the engines in use, at various power outputs. Generally speaking, the fuel efficiency of an engine decreases as it is throttled down.

Two schemes might be suggested for maintaining the speed, if this were considered necessary. The tail plane could be mounted adjustably, in the manner adopted on some scouts, so that the flying angle of the whole machine could be decreased as the loading was reduced. An alternative would be to reduce the area of the main planes as the flight progressed. This problem has been discussed for many years, but never satisfactorily solved. There seems sufficient inducement, however, in the case of the transatlantic flight to justify going into it again.

Such details as these, nevertheless, can be considered later. Their incorporation might help a

regular ferry service, but they are in no way necessary to the initial flight, which turns upon thoroughly reliable engines and navigation. The former are coming nearer every day and the latter may turn out to depend largely upon the efficient organization of patrol ships.

One thing is certain; there will be no lack of suitable volunteer pilots, both English and American, keen on gaining the honour of the first trip, who will probably run less risks to themselves than did the crew of the Handley Page which set out for Salonica some months ago to bomb Constantinople and return and did it, or than the Italian squadron which recently flew to Vienna for propaganda purposes, and did it, a 700-mile journey in each case.

We can picture the late Gustave Hamel looking down upon a string of machines winging their way across the Atlantic. But for his untimely death he might possibly have got across before the war. His was a plucky scheme, involving as it did the use of an enormous single-engined monoplane with a detachable landing gear which was to be dropped as soon as he took the air, to reduce head resistance on the long flight, with the hope of making a safe crash landing at the other end.

F.B.S.

The Sensations of a Parachute Descent.

AFTER watching several demonstrations of dropping from an aeroplane by parachute, I became very keen upon making a drop myself, and after some trouble I obtained permission from the inventor of a certain type of parachute to do so the following week. At the appointed time I turned up at the aerodrome and found the pilot and his machine outside the hangar, waiting for me, in company with a number of specially favoured visitors and spectators who had been invited to watch the trial. After being introduced to the pilot and several important personages, I walked up to the waiting machine, where willing hands strapped me into the harness by which the parachutist is attached to the parachute.

I shake hands with a few friends and climb into the

passenger's seat in front of the cockpit. By the time that I have seated myself in the machine, a mechanic is swinging the propeller, and, after he has run clear of the wings, the pilot opens out the engine. I wave my hand to the groups of spectators, while already the machine is tearing across the aerodrome.

The next time I look over I find that we are in the air, and the ground seems to be dropping away from us very quickly, so I take a good look at all the buckles on the harness to see that everything is in good order. I begin to wish that I had not volunteered to make the drop, as the ground seems so sickeningly far away, but, stimulated by the thought of the spectators beneath, I pluck up courage. The pilot gives me the signal to get ready to jump. I



A scene in an American aeroplane repair depot in France.—American official photograph.



From the Days of the Crimea

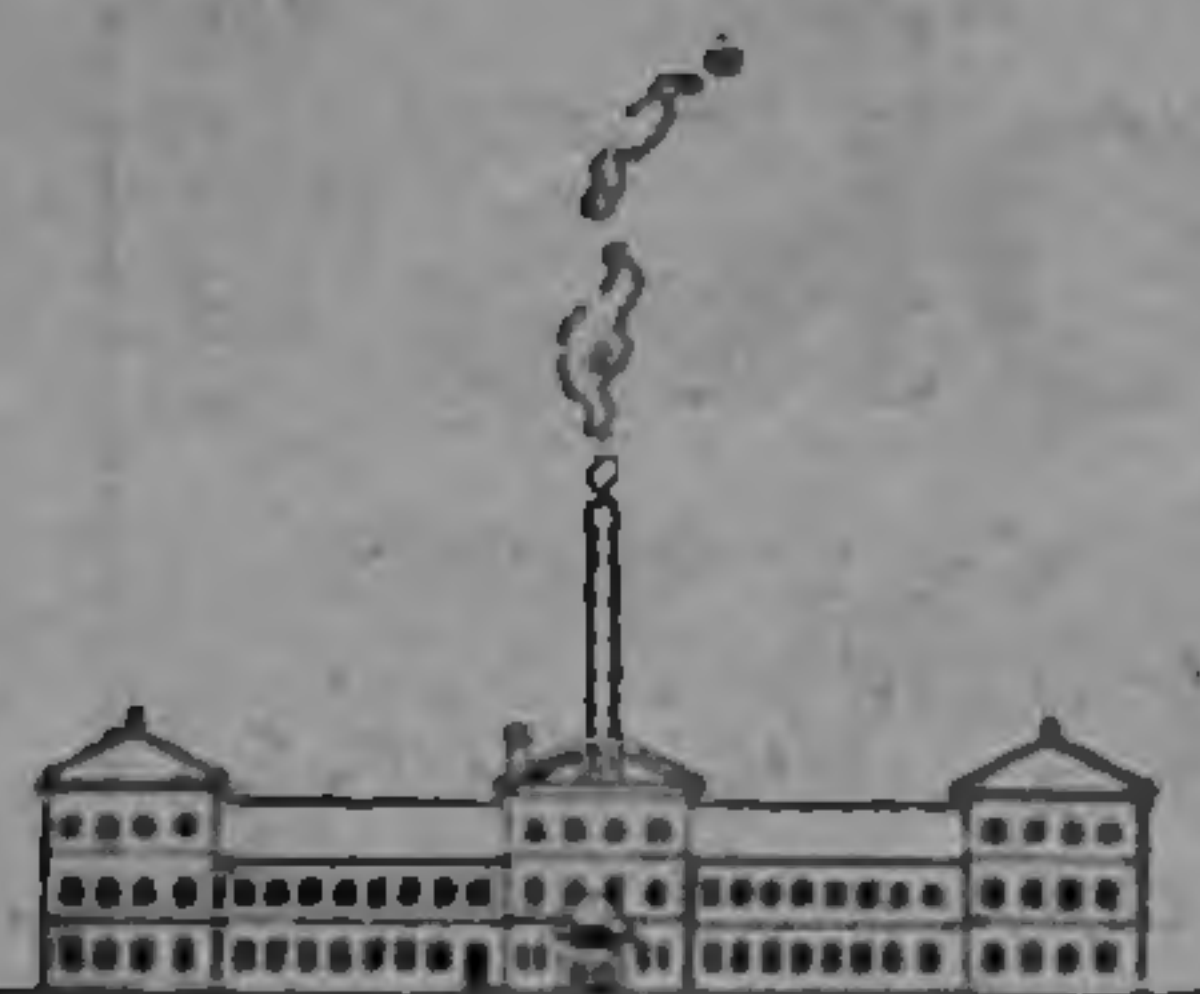
SOME EPISODES IN

B.S.A. HISTORY.

ORIGIN OF THE B.S.A. COMPANY

IT is an interesting fact that it was owing to a shortage of munitions during the Crimean War that The Birmingham Small Arms Company had its origin. The Government of that day found it necessary to call on 16 firms of Birmingham gun-makers to furnish a supply of arms, and from this beginning originated the great B.S.A. Factories which have, on more than one occasion, proved of National importance.

Though over 60 years have passed since the time of the muzzle-loader—entirely hand-made, and typically British in the excellence of its workmanship and material—B.S.A. productions have unceasingly maintained the same high standard of quality. To-day B.S.A. Bicycles and Motor Bicycles, by their reliable service under the severe test of modern warfare, are still upholding the great B.S.A. traditions.



Original B.S.A. Factory, 1851

THE BIRMINGHAM SMALL ARMS COMPANY LIMITED
BIRMINGHAM.

Converting ■ Brough to Run on Heavy Fuel (contd.).

layer of insulating tape, then asbestos string, followed by more insulating tape. This is necessary to prevent the loss of heat which would otherwise take place. For the same reason two layers of felt should be cut to fit round the sides of the tin—one alone was found by experiment to be insufficient—also a layer to cover both top and bottom. The whole, as will be seen from the photograph, was secured with insulating tape, but this was unsightly and unsatisfactory. It has now been superseded by carefully wiring the felt on to the tin and fixing it with a spot of solder.

It may be argued that the whole arrangement is liable to set fire to the carburetter; this is not so, however. The machine may be run with flames issuing from the exhaust, but, owing to the small bore of the tubing, no flame reaches the hot air chamber. The float chamber is kept quite warm and at an even temperature; not excessively hot, but sufficient to produce good carburation.

Slow running does not seem to be affected in any way once the carburetter is warm, nor is there ever

any misfiring at low speeds with the device in operation. On one occasion, however, the connecting tube came adrift at the silencer and during a run. The difference was at once very marked. The engine began spluttering badly and flatly refusing to run as an engine should until provided with a sufficiency of petrol in the tank to form a workable mixture with the other fuel. The device has now been in action for some time, and has, with the above exception, proved completely satisfactory. Up to the present the most suitable jets appear to be 0 or 00, 3 and 7, although ■ 4 jet gives rather a better result at times.

In addition to this carburetter fitting, the crankcase release has been made to do useful work. As may be noted in the photograph, instead of merely blowing oil on to the ground, the

original pipe has been bent up and taken forward under the tank to the front overhead rocker arms, which it lubricates most efficiently with an oil mist. A shield is fitted to prevent surplus oil from blowing back on to the rider. A thin piece of copper tubing is soldered into the other tube, and performs the same function to the rockers on the rear cylinder. V.H.

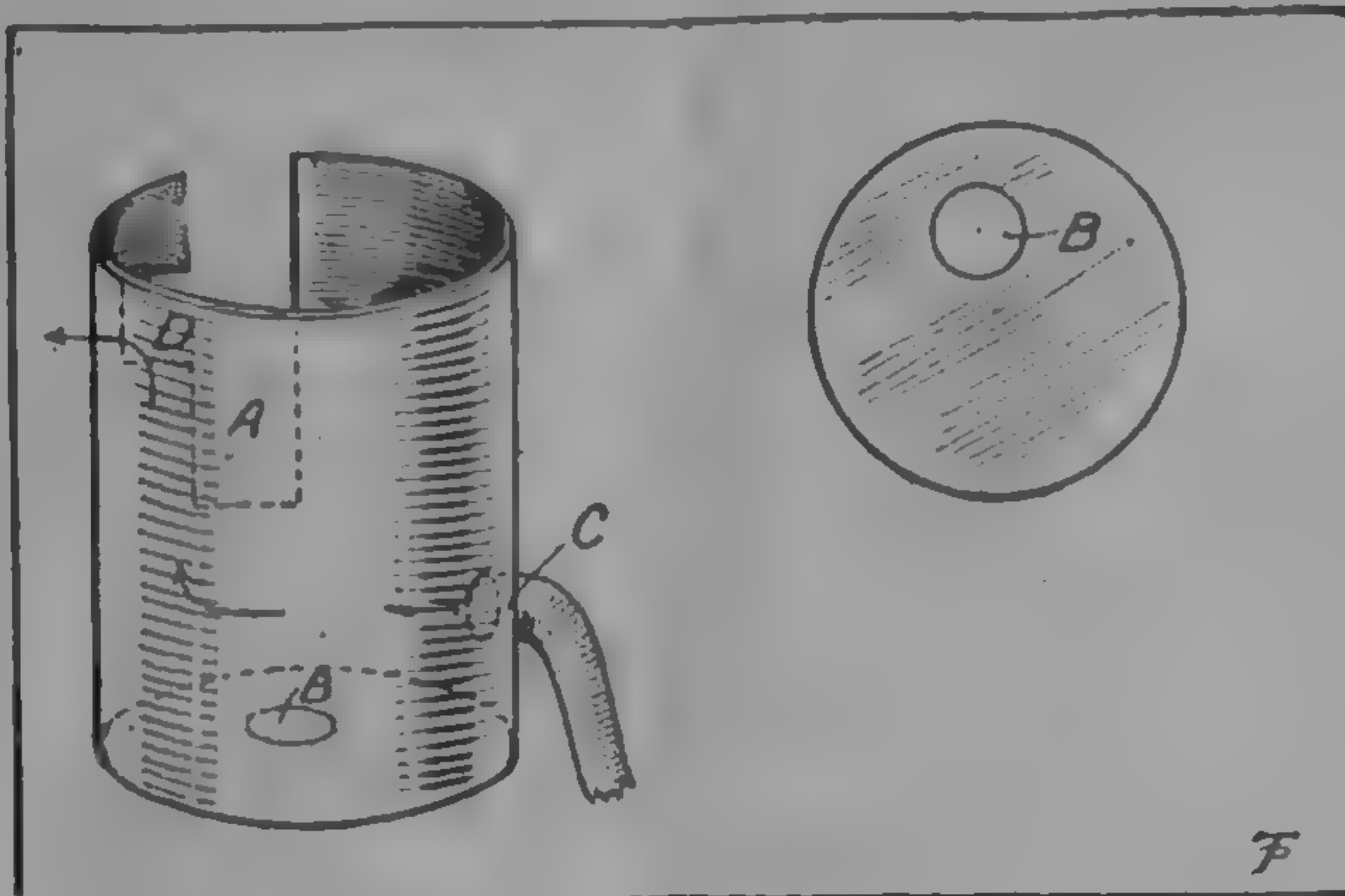


Fig. 4.—Constructional details of the fitment.

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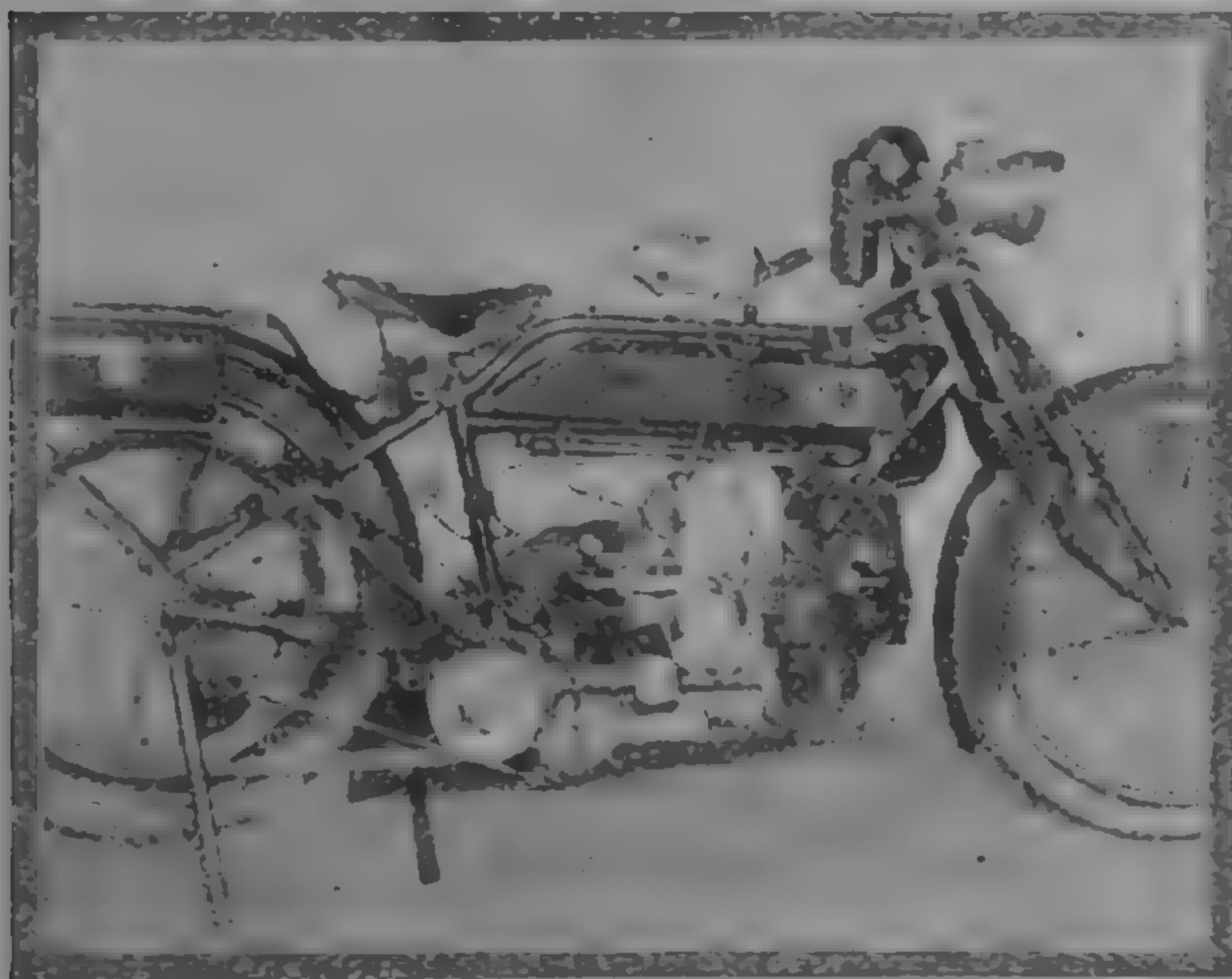


Fig. 2.—The complete machine.

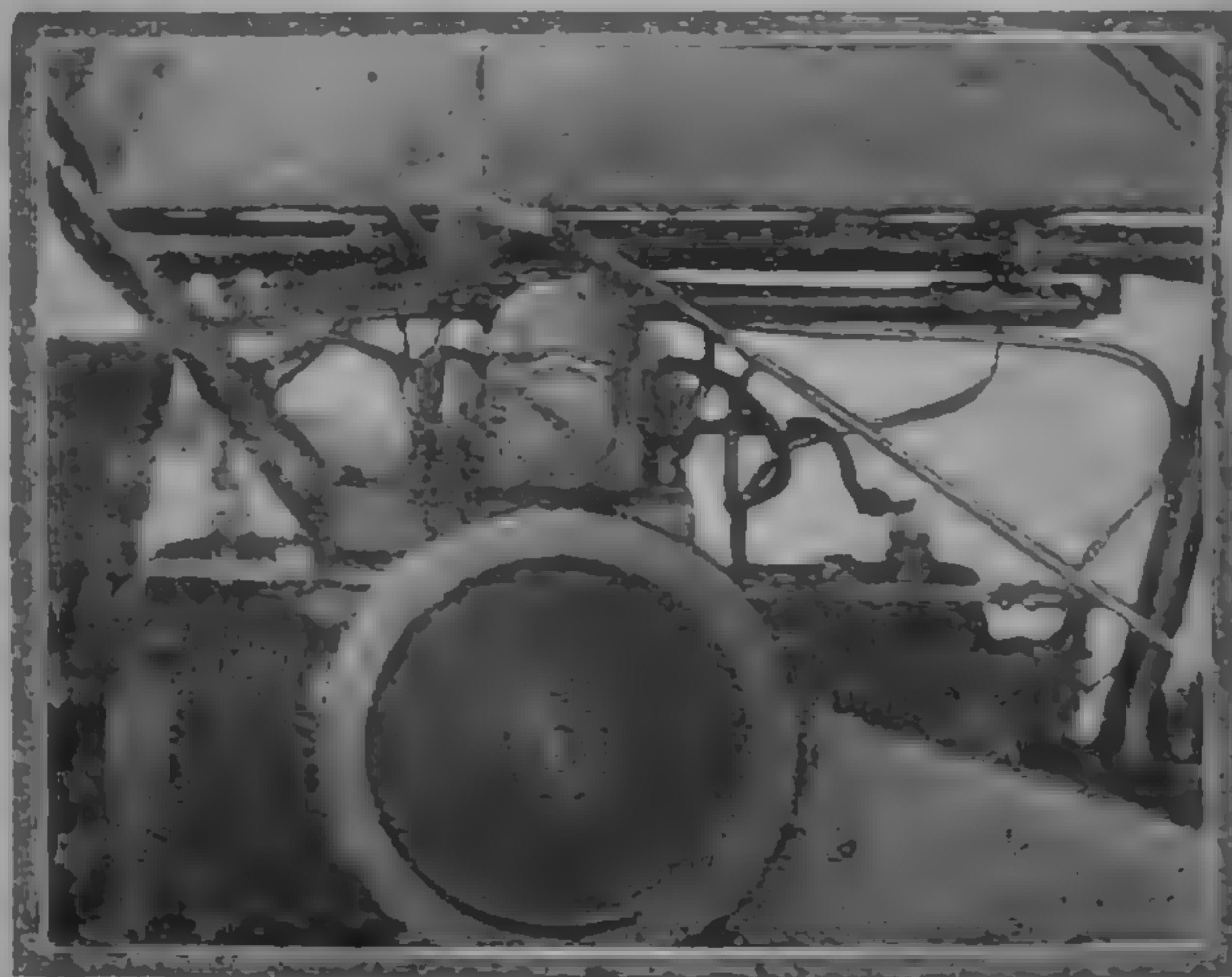


Fig. 3.—How the overhead rockers are lubricated.

A REMARKABLE MAP OF 100 MILES ROUND LONDON.

TEMPLE PRESS LTD. have just issued ■ new map in four sheets of the environs of London, mounted on extra stout cloth, price 2s. 6d. per sheet. The map is on the scale of two miles to the inch, exceptionally clearly printed and produced in colours to show the contour of the land. The contours are shown in seven grades of colour, from the dark green of sea level merging to light green, light brown and then to dark brown, the darkest shade of brown indicating the highest hills. Important main roads are coloured red, rivers and lakes blue. A map that covers a very wide range of country in one direction from London has been long needed, and it will be found that this map is exactly the article required. The N.W. section takes in the whole of London, but extends north to above

Baldock, Fenny Stratford and Buckingham, and west to Oxford. The S.W. section is the largest, taking in the whole of the country from west of New Alresford and Fareham and the coast line to Seaford and extending south from the S.E. suburbs of London. The S.E. section takes in the whole of Kent and the coast line from the Thames to Seaford. The N.E. section takes in the Essex coast and the Thames to Dartford in the south and Saffron Walden in Essex and Felixstowe in the north. The largest sheets are 30 ins. by 22 ins. The series is printed by John Bartholomew and Co., and known as "The Motor Map of the Environs of London," can be obtained from our offices, price 2s. 6d. per sheet, postage 2d. extra.



When
the War
is over

and the curtain can be drawn back, one of the things which will stand out will be the service which has been given on every Allied Front by the famous

STURMEY ARCHER

COUNTERSHAFT GEAR

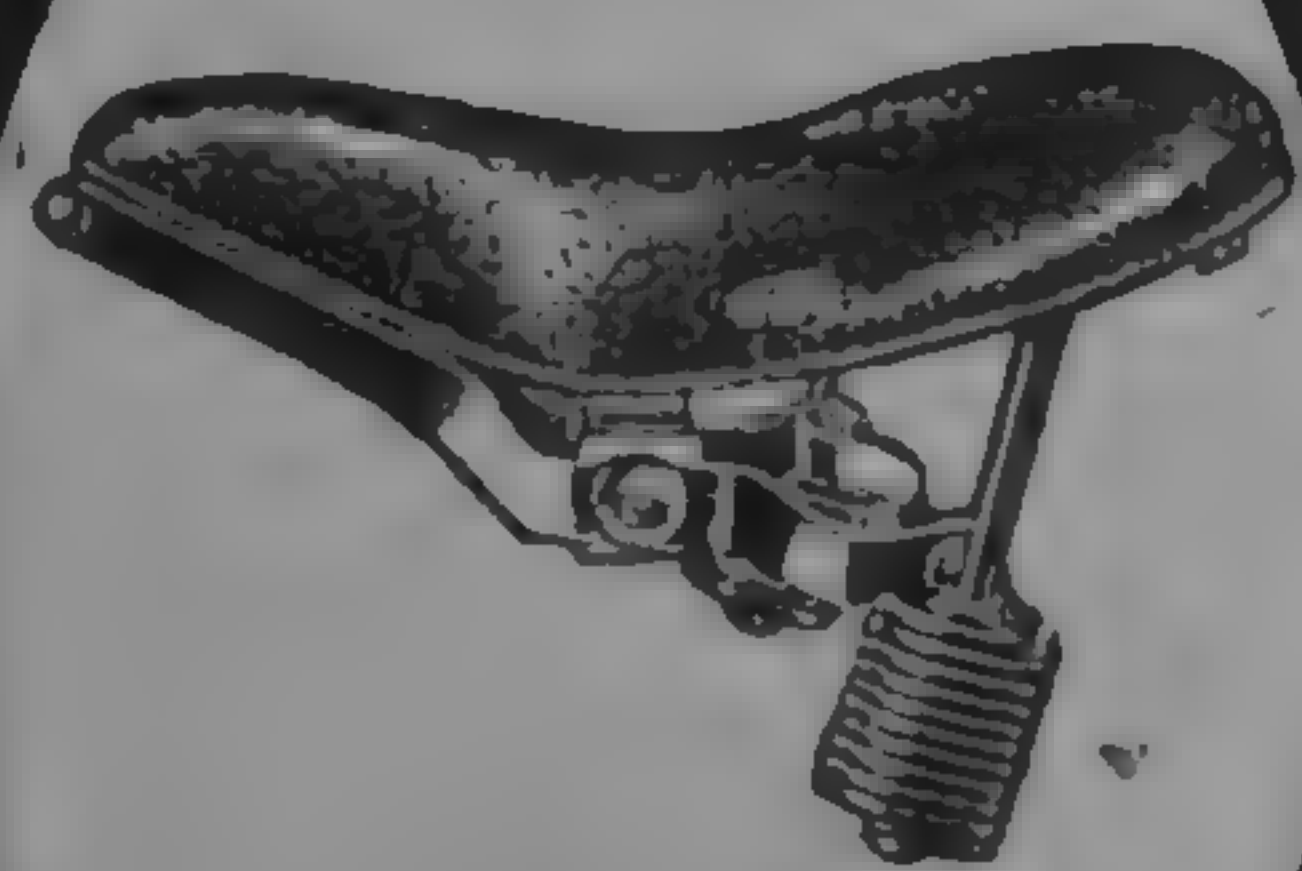
It has been the "stand-by" of the dispatch-riders, and nothing more is needed than to ask their opinion of its service. No dispatch rider will have any other gear on his own motorbicycle after the war, whatever substitutes or "just-as-goods" may be offered. For the Sturmeley-Archer has proved itself, and the wise motor-cyclist will insist upon the proved gear.

**Sturmeley Archer Gears,
Limited, Nottingham.**




“ **N ROADWAY** ”

ROUGH OR SMOOTH



**BROOKS
B 170.**
Other saddles
may look like it
—but that's all.



With the engine on the "purr," the exhaust "barking" merrily, you "open out" and whatever may be your speed, whatever may be the roadway — rough or smooth—your

BROOKS

will respond to the call of your comfort. In no other saddle will you obtain the same features. From no other saddle will you obtain the same satisfaction.

**J. B. BROOKS & Co., Ltd.,
77, Criterion Works,
Birmingham.**



One of our huge bombing machines ready to start on a flight.—Official photograph.

climb out on to the wing of the machine, and, by clinging to the body, I am able to reach the trailing edge of the wing, and sit down with my feet dangling over the edge of the plane. I manage to hold on with one hand to the body of the machine, and with the other grip hold of the tie-rods which stretch between the top and bottom planes from the struts to the body.

In this position the air pressure on my back is terrific, as the machine is travelling at over 50 m.p.h. When I look at the pilot, so snug in his cockpit, I think without enthusiasm of the job before me, but presently he gives me a smile and a pleasant nod, and, smiling back, I shut my eyes and let go of the machine. By doing so, I drop from it and fall through space.

Before I can open my eyes I feel a tug at my back, which tells me that the parachute has left the casing in the body of the machine and has pulled out from

its shield. I manage to look down at the ground, which is racing up to me at a terrific speed, and almost immediately there is another tug at my back; upon looking up I find that the parachute has opened and I am drifting to earth with a very slow and gentle motion.

Upon glancing downwards, I can see upturned white faces gazing at me, and several spectators are racing across the aerodrome below me to meet me when I touch the ground. Within a minute I am almost on terra firma again. By this time the parachute has got a gentle swing on it.

I am surprised, upon reaching the ground, not to receive anything like a severe shaking, but only the same small shock as one would experience when vaulting over a low garden wall. I feel none the worse for my adventure, especially as I have made a low drop.

R.G.K.

A COMMON OCCURRENCE.

IT is a very common experience for manufacturers to receive requests for lists and information from people who omit to enclose their address. A recent example has been brought to our notice by Douglas Motors, Ltd., who have received two communications from a Lieut. Connochie. The first of these concerned the purchase of a machine, while the second complained of the concern's lack of courtesy in not replying to his first letter. In neither instance was the writer's address included. If Lieut. Connochie should see this paragraph, and will make good the omission, Douglas Motors, Ltd., will be glad to remove the cause of his complaint, which is naturally quite unjustified.

OF IMPORTANCE TO CONTRIBUTORS.

WILL those of our readers who are attached to either of the Services please bear in mind that, according to the regulations, contributions of any nature intended for publication must first be submitted to their Commanding Officer and his written permission must invariably accompany all such contributions.

This rule holds good for letters intended for our correspondence pages as well as general articles, and sketches and photographs are also included in the regulations.

All contributions dealing with naval or military subjects are invariably submitted to the Press Bureau before insertion.



A nocturne of the Strand—a foretaste of winter.

Fire!

GIVING evidence in a case of motor cycling at excessive speed at Paignton, recently, a witness said that the defendant was scorching. The Bench, however, quenched him with a fine of £1.

A Public Benefactor.

Mr. J. B. Dunlop, inventor of the Dunlop Tyre, summoned at Dublin for illegal use of a motorcar, pleaded that he was 79 and suffering from bronchitis. The magistrate, saying that he must regard him as a public benefactor, imposed the nominal fine of 10s.

Death of a Well-known Experimentalist.

MEMBERS of the engineering world will regret to hear of the death of Major Bertram Hopkinson at Cambridge, where he was Professor of Mechanics, and who has conducted extensive experiments upon the effects of water injection in internal-combustion engines.

Lighting-up Times for Saturday, 28th Sept. 1918.

London ...	7.15 p.m.
Newcastle ...	7.19 p.m.
Birmingham ...	7.21 p.m.
Edinburgh ...	7.55 p.m.
Liverpool ...	7.25 p.m.
Bristol ...	7.25 p.m.
Dublin ...	8.9 p.m.

Lighting-up time in Ireland and Scotland is one hour after sunset, but the Scottish lighting regulations (vehicles) come into effect half an hour after sunset.

Lighting-up time in England and Wales is half an hour after sunset.

Moon.—Last quarter on the 27th.

Leniency for a Joy-riding Munitions Inspector.

OPENING a case of unlawfully using petrol in a motorcycle at Brierley Hill recently, a constable stated that the defendant, when stopped, said that he had not a petrol permit and had never had one. He was using petrol which had been given to him and some which he had had in the tank for 18 months. He was going to Malvern for his holiday. In defence it was stated that the defendant had been "misled" by a paragraph in a motor journal, stating that munition workers might use their motorcycles "for their holidays," provided they obtained the necessary permit. Defendant had applied for one and received a telegram from the President of the Motorcyclists' Union stating that the necessary permits were being forwarded. Defendant delayed going on his holiday for two days, awaiting the arrival of the permit, but it did not come to hand, nor had it since arrived. He took the telegram with him, however, and produced it to the constable. The Bench ordered him to pay costs and the solicitor's fee.

A12

No Petrol for King's Messengers.

ALTHOUGH his solicitor informed the Bench that he was at the time on Government duty as a King's Messenger, S. Hercules Langrishe, Cmdr., R.N.V.R., was recently fined £2 by the Isle of Wight Bench for using a motorcycle without having a permit.

A Fatherly Feeling.

AN Italian living at Handsworth, Birmingham, who was summoned recently for using petrol in his motorcycle on August Bank Holiday, contrary to the Motor Spirit Order, pleaded that at the time he was riding to see his son, who had joined up in the British Army. All the other members of his family of military age had joined the Italian Army. The chairman of the Shrewsbury Bench said that it was very natural that the defendant should want to go and see his soldier son and the case would be dismissed upon payment of costs.

Horns and Hatred.

"MOTORISTS are not really morose, evil-disposed usurpers of the common rights of way. They have been woefully belied and misrepresented by the mechanical ~~vices~~ which an ill-directed ingenuity has bestowed upon them," says "The Saturday Review," in pointing to the motor horn as the sole cause of the odium in which the motorist is supposed to be held by the public. If this is the case, it is just as well that the horn has been called to another sphere of usefulness, according to the "Daily Express"—that of giving gas-attack warnings at the front. Doubtless the sound of its voice, however, calls forth the same old stream of invective from soldiers in France as it did from village loiterers in a pre-war Blighty.

Roadside Advertising Campaign Continued.

LOVERS of the countryside will be glad to know that the Royal Automobile Club is continuing its campaign, recently referred to in these columns, against the disfigurement of our roadsides by objectionable advertising hoardings. An eight page pamphlet has now been prepared by the R.A.C. in collaboration with the Society for Checking the Abuses of Public Advertising, dealing with the facts of the case, and it is proposed to place this pamphlet in the hands of all local authorities who have not as yet taken action. The present time is peculiarly suitable for such action, while war restrictions have reduced the number of roadside signs and hoardings to a minimum, so that the removal of what remains of them would inflict the least possible harm upon their owners. Five years' grace is allowed by the Advertisements Regulation Act to advertisements which are in existence at the time when by-laws forbidding their display are framed, but, as the R.A.C. points out, although this may seem discouraging, it should operate as an incentive to local authorities to take action at once. Prompt measures now will at any rate prevent the instalment of new eyesores.

News in Brief (contd.).

Powell and Hammer Changes.

WE learn that Mr. Hammer, Senr., of Messrs. Powell and Hammer, Ltd., Chester Street, Birmingham, has purchased the interest of Mr. Powell in this concern, Mr. Powell having severed his connection with the company.

A Dangerous Corner.

RETURNING from Windsor by motorcycle with his major in the sidecar, a lieutenant of the Canadian Forestry Corps crashed into a telephone pole when rounding a sharp bend near the Wheatshenaf Hotel and was killed instantaneously. The machine was wrecked, but the passenger escaped with a severe shaking.

Drenched With Burning Petrol.

A GHASTLY story comes from San Antonio, Texas, where a young mechanic died in hospital as the result of burns received from burning petrol. A half-gallon can of the spirit caught fire in a shop and was hurled out by one of the employees in order to prevent a conflagration. The blazing spirit struck the mechanic, who was just outside the door, and his clothes were immediately enveloped in flames. They were burned from him before the flames could be extinguished.

From a German Dug-out.

THE illustration on this page is reproduced from a page of the "Berliner Illustrierte Zeitung" which adorned the wall of a German dug-out. During the recent push a reader of MOTOR CYCLING entered this dug out and, realizing the interest the picture would hold for fellow readers at home, tore it from the wall and sent it to the Editor. The picture is obviously a posed photograph. The motorcycle is a Wanderer, one of the only two makes used in any quantity by the German Army.

In pre-war days the Wanderer was imported into this country by the Service Co., Ltd., of 292, High Holborn. It incorporated many good features and was well constructed. A constructional peculiarity is that the single-cylinder engine sloped forward in the frame, after the manner of the P. and M., only not to such a great degree. In the accompanying illustration the angle at which the cylinder is set makes the power unit resemble a twin.

Current Competitions.

WITH the idea of giving the mechanically and artistically-minded a little incentive, MOTOR CYCLING offers a prize of Two Guineas for what constitutes, in the opinion of the Editor, the best dimensioned drawing and description of an attractive sidecar body. In making the award, attention will be paid to seating and luggage accommodation, weight, wind resistance and manufacturing costs.

Attempts, the descriptive matter of which should not exceed 750 words, should be marked "Sidecar Body," and should be addressed to the Editor, MOTOR CYCLING, 7-15, Rosebery Avenue, London, E.C. The closing date will be Tuesday, 15th October.

A MOTOR CYCLING 10s. note (franking the purchase of goods to this amount from any advertiser in our pages) will be awarded to the sender of the article which, in the opinion of the Editor, deals best, in 500 words, with the subject: "Big single or small twin; which is the best all-purpose mount?" The closing date will be 29th October.

Prices of Indians and American Excelsiors Raised.

WE learn that the Hendee Manufacturing Co. in America has advanced prices by 50 dollars (about £10) on their Indian twin-cylinder models. It is not known yet whether the prices of these machines will be raised correspondingly on this side. American Excelsiors have also gone up in price 60 dollars.

Epicureanism on £1 a Week.

SUMMONED at Croydon for using petrol substitute for driving a motorcycle, contrary to the M.S.R.O., a Dalston cashier admitted that he had been on a holiday at Brighton and was returning when he was stopped. He was a cashier earning £1 weekly with board and lodging, and the combination was his. The Clerk: "Bless my soul, on £1 a week? You will have an estate presently. What did this chariot cost? A good deal of money?" The defendant replied that he bought it second-hand for £7 10s. and had it repaired to the tune of about that amount again. He was fined £2 2s.

R.A.F. Motorcycle Candidate After 2½ Hours Tuition.

THE recent complaints of unsatisfactory tuition at certain

alleged motor schools were substantiated recently at an inquest held at Surbiton, when investigation was made of a fatal motorcycle accident. The accident, it was stated, resulted from the testing of a girl candidate for the Royal Air Force. She was driving a sidecar combination with the sergeant-major, who was testing her, as passenger, when she saw the deceased woman approaching her on a bicycle. The motorcycle swerved to the off side and the sidecar struck the cycle, throwing its rider into the roadway. The coroner: "You lost control of the motorcycle?" Defendant replied: "Yes, I couldn't get it back to the right side." "Were you nervous?" "Yes, a bit." In reply to further questions the defendant confessed that she had taken a 2½ hours course at a certain school of motoring. The sergeant-major stated that it was not Army practice to ask for a certificate of proficiency when women presented themselves as candidates for enrolment; they tested the applicants themselves. He added that he had tested a good many pupils from the motor school mentioned and had never found one satisfactory yet. A verdict of "Accidental death" was returned.

The Dunlop Endowment and Education Schemes.

THE first term of the Dunlop Rubber Co.'s educational scheme has now come to an end, and on Friday, 6th September, the male and female members of the technical and commercial staffs assembled at the Birmingham Temperance Hall to celebrate its conclusion and also the inauguration of a staff endowment scheme. The Lord

Mayor of Birmingham was present and distributed the prizes. The schemes were explained in detail by a member of the Dunlop staff, who pointed out how in the past industry and commerce in this country had been handicapped through the greater percentage of those employed being unable for want of sufficient education to use their abilities to the best advantage. The Dunlop education and endowment scheme would, they hoped, put an end to this. To each student who achieved success promotion is practically assured. Although the scheme was inaugurated only in January last, out of 200 students enrolled 120 were prize-winners, although in most of the schools and classes the full year's class had been half completed. A concert by the Dunlop staff choir, whose fine renderings were very much appreciated, completed the proceedings.



What a German D.R. looks like.

DOES STEAM IMPROVE THE MIXTURE?

A Method of Introducing it Into the Ingoing Charge of Gas.

IT is a well-known fact that the presence of a minute quantity of water in the combustion chamber during the explosion has a beneficial effect upon the running of an engine, and many experiments have been made to find out the best method of introducing the water into the cylinder.

Most motorecyclists have noticed how, just about dusk, their engines seem to be developing more power, and they have no doubt put it down to the fact that at "dewy eve" the atmosphere contains more moisture than during the day time. At any rate, it seems fairly certain that this feeling of better running is not altogether an illusion, and it would be difficult to find another explanation of the phenomenon.

One hears, also, of farm tractors and paraffin engines which have been cured of overheating and knocking by the simple process of allowing

water to drip into the induction pipe.

The device shown in the photograph is a simple means of mixing water, in the form of steam, with the ingoing charge of gas. The water is contained in the top half of an acetylene generator, the copper pipe being soldered round the valve which ordinarily regulates the drip of water on the carbide. The pipe is then coiled tightly round the exhaust pipe of the rear

cylinder of the Powerplus Indian, to which make of motorcycle the device is fitted at present; thence it passes to the main air intake of the carburetter. Opening the water valve of the generator one notch is sufficient. The heat of the exhaust pipe converts the water in the coiled pipe into steam, and this passes into the carburetter with the main air supply.

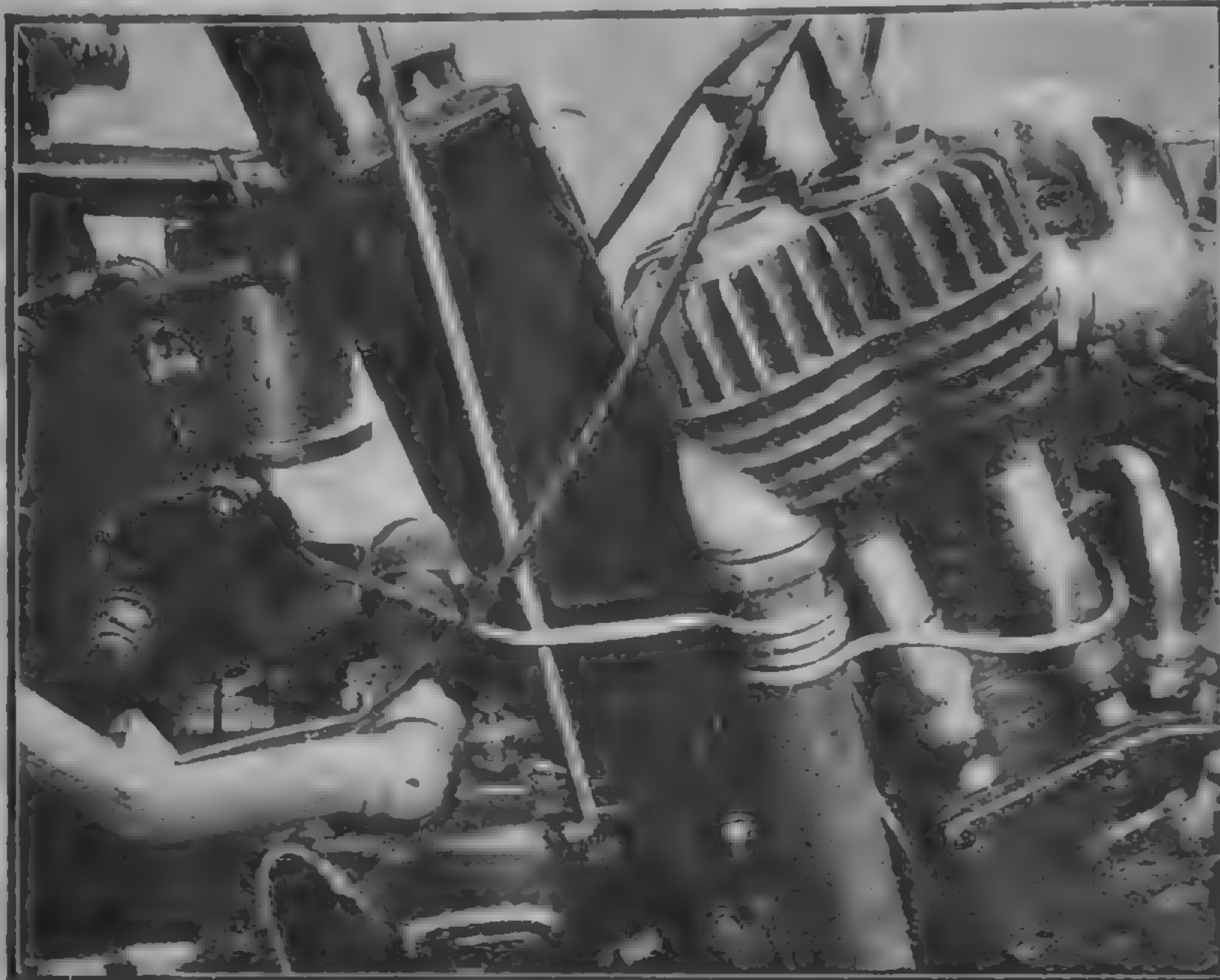
What actually happens to the steam it is rather difficult to say. Possibly the cold air and vaporizing petrol condense it to water again, or perhaps the steam helps to vaporize the petrol. At any rate, it is obvious that it gets to the engine in some form, for the carburetter is always dry when the engine is running. When it is hot and stationary after a run, steam can be seen issuing from the pipe.

Just at present it is impossible to give the device a thorough test. Petrol is such a varying concoction nowadays

that it is difficult to say whether an improvement in the running is due to the water or to a lighter spirit. When the water is turned on the engine certainly seems to run slightly better, but data as to petrol consumption, etc., cannot be obtained in a few miles.

The subject certainly opens a promising field for experiment.

PAT.



The arrangement is quite simple to construct and fit, and is by no means unsightly.



A group of D.R.s awaiting orders in Whitehall. An American seems to be on the best of terms with his English confreres.



The author is seen typing the first instalment of his manuscript.

By OUR AMERICAN CORRESPONDENT.

(We do not consider that any apology is needed for the considerable space which is, and will be, devoted to this interesting account of a strenuous tour through some of the most gorgeous scenery in the world. Our only regret is that in the process of reproduction full justice is not done to the unique photographs with which the article is illustrated.)

"WHAT? You eat all that in two weeks!" This ejaculation was passed over the back fence by our next door neighbour as canned goods, salt pork, hardtack, bags of meal and what not were being packed away in our sidecar in preparation for touring the back trails of the high Sierras. Grub comes high in isolated mountain stores, and, what is more, the quality is frequently poor and the stations few and far between in the country for which we were headed. In addition, we had had some experience with mountain appetites as well as of being on short rations because the commissariat was low. We admit that on this trip our stores were ample, but they included practically nothing that the food administration would not have sanctioned our taking.

After fitting a tin of beans in here, a bag of rice there, a saucepan somewhere else, and a bit of something in just about every nook and cranny of the outfit, we were eventually ready for the road. Just for our own personal edification we ran the combination on to the scales. It tipped the balance at exactly 1050 lb.; 710 lb. of this were machine, sidecar, and passengers, the rest were food, camp equipment, and all the miscellaneous assortment of things that it takes to make life in the open a pleasure instead of a hardship.

Thanks to sound principles of engineering and years of patient development on the part of the motorcycle manufacturers, the machine, loaded though it was, purred along with perfect ease, and held the road splendidly. We rolled through Pasadena, that city of monocled millionaires, who paused in their promenades and cranked their necks, evidently getting some ideas on war-time economy touring that they had never deemed possible before.

We sailed across the long serpentine bridge over the Arroyo Seco, past Eagle Rock, that mammoth boulder with the American emblem of liberty

embossed by nature on its side, and in a few more minutes were speeding by the motion picture camps and studios of the fertile San Fernando Valley. The highway through this section of the country is like an elongated floor and leads through vast orchards of oranges, lemons, and olives, with great hedgerows of roses and an occasional eucalyptus grove thrown in for good measure of scenery. On the west the low mountains of the Malibu Range stood out in bold relief, while to the eastward the great peaks of the Sierra Madres towered into the heavens with their tops buried in the low hanging clouds of the morning. The road gradually leads upward, the surrounding country becomes more mountainous, and then suddenly the gaping maw of the Newhall Tunnel looms into view. This tunnel is a blessing to motorists, for it has eliminated the formerly much-dreaded Fremont Pass, a blood-curdling niche in the mountains that early motorcycleists frequently assembled only to find themselves afraid to attempt the trip down. Entering the tunnel it seems as dark as the River Styx by contrast with the brilliant sunlight of the outside. The spot of daylight indicating the opposite end looks about as big as a threepenny bit, and the motorcycleist passing through it must simply head for this tiny guide mark, trusting to good luck and his ability to steer to prevent scraping his ears on the concrete walls of the sides. Once out of the tunnel the road goes down grade for several miles until, just beyond the town of Saugus, the end of the paved highway is reached.

The renowned Ridge Route to Bakersfield had met with an accident in the form of a gigantic landslide. It was quite closed, so we were diverted by the alleged "Best Temporary Route" by way of Boquet Canyon. It is 32 miles through Boquet Canyon, and then over 35 miles of desert road that is profanity provoking to get to Crane Lake—a point which by way of the Ridge is but 38 miles from the end of the



SIDECARRING IN THE SIERRAS.

1.—Yosemite Falls. Here the waters of Yosemite creek plunge 1430 ft. in the first jump and 320 ft. in the second. 2.—A scene in the Y above the level of the sea. 3.—Elizabeth Lake, near the summit of Boquet Canyon. It is one of the few high mountain lakes of the grandeur. 5.—Ellery Lake, far above the timber line in the Tioga Pass. 6.—Our camp on the Nevada shore of Lake Tahoe. 7.—Lake on Lake Tahoe. A bullet from the author's pistol ended his career, and he was roasted



RRING IN THE HIGH SIERRAS.

2.—A scene in the Yosemite valley. The large rock in the background is half dome. It rises 4892 ft. above the valley floor, or 8852 ft. above the level of the sea. 4.—The view into the Yosemite valley, from just below Inspiration Point, is one of indescribable beauty. 7.—Lake Tahoe, from the rock of the Lady of the Lake, on the Nevada shore. 8.—This fat racoon strayed near our camp and he was roasted for dinner next day. Roasted racoon tastes very much like roast pork.

Sidecarring in the High Sierras (contd.).

paved highway at Saugus. The journey through Boquet Canyon is a beautiful one. The road is fairly good with the exception of a few bumpy stretches, and the grades are easy enough, so that, even loaded as we were, we made the greater part of the distance on high gear. Once over the summit of the canyon the road leads out through the Mojave Desert, and here our bad road troubles really began. It was a series of holes, ruts, bumps, sand, steep grades, washes and corrugated scenery all the way to Elizabeth Lake, and until we reached the paved highway at the foot of the Tejon Pass the going was not much better. At Elizabeth Lake we boiled a pot of coffee, ate lunch, and then had a bath under the shelter of some protecting willows. This brief rest dispersed much of our fatigue and left us feeling that we could tour on indefinitely.

Arrival at Crane Lake brought us on to paved highway again, and with a motor that ran with the precision of a watch we were soon reeling off the miles. Except for 18 miles of bumpy old oiled road that was in bad repair over the Tejon Pass we had fair going all the way into Bakersfield. The Tejon Pass is not much of a pass except in name. To be sure, it takes one over a branch of the great American Pacific Coast Range, and into the cool climate of 4000 ft. elevation. It leads through some magnificent



Mirror Lake, a spot of rare magnificence in the cup of the Yosemite Valley.

ranch country, through forests of oak and around some miles of jagged crags, and although the road is a bit aged and rough it is neither difficult nor dangerous, even for antiquated low-powered machines. Once down the other side the highway leads off into the great central valley of California, a vast level agricultural country dotted with tens of thousands of petroleum wells and interspersed with a network of excellent roads.

It is 36 miles from the foot of the Tejon Pass to Bakersfield, and if one has a fast machine the trip may be made in less than that number of minutes. The road is of concrete all the way, and as smooth as the top of any table. It is slightly down grade and as straight as a stretched string. There are no cross roads, and a clear highway is visible for miles ahead. All the speed limit there is is the speed of one's engine. We slowed down at the town limits of Bakersfield and toured in up Chester Avenue well in time for an early supper, stopping at an hotel in Bakersfield that night.

We slumbered late next morning, and it was 10 o'clock before we took the road for Fresno. Bakersfield is one of the greatest petroleum centres on the face of the earth. It is a fine city and a splendid business town, but it certainly has the Devil's own climate in the summer time. The temperature stood at 115 degrees as we toured out of the place. Once out on the open road we began creating a comfortable breeze for ourselves that was a most welcome relief from the stifling atmosphere of the great oil city. We now had 132 miles of glistening boulevard ahead of us to get to Madera in the heart of the immense raisin district of California, at which point our route led off into the mountains.

That 132 miles was little more than a joy ride. We lunched at Fresno, and by 3 o'clock in the afternoon had stocked our last petrol and oil at civilization prices (10d. per gallon for petrol and 10d. per quart for oil) at Madera, inquired the road to Grub Gulch, and were on our way across the enormous wheat fields that characterize the country just below the first foothills. It was frightfully hot. There was a breeze, to be sure, but it felt as if it came out of an oven. As to the scenery, it was a sea of wheat with a horizon of wheat, and with waves passing over its surface like the waves of the ocean. After travelling 20 miles we had for scenery—more wheat! It would almost strain one's imagination to believe that a world shortage of breadstuffs could exist while looking upon such a spectacle, or to think that such institutions as wheatless days and daily wheatless meals could be possible. Hundreds of men with great tractor grain binders were busy harvesting the crop in several places, and for many miles about the only vehicles we passed along the road were huge motor lorries piled high with bags of wheat.

It almost seemed that we were into a plague of heat and wheat before the advance guard of the first foothills loomed into view. At first these appeared like great barren sand heaps, but as we approached them the apparent barrenness we found to be a carpeting of sage brush. The sage gradually merged into scrub oak as we went farther, then into mammoth mountain oaks, and finally into a vast forest of pine. The road through this foothill country was nothing for the State to be particularly proud of. Its worst feature seemed to be that of wriggling uphill and down with an utter disregard for the topography of the country. We would go thundering up some long steep grade in intermediate gear thinking we were really getting somewhere, but only to find that the hill was what is known in mountain parlance as "a fool-killer," that is a long, steep grade that takes one up only to get one to a point where it lets one down again.

(To be continued.)

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DO NOT FORGET TO MENTION "MOTOR CYCLING."

THE EDITOR'S CORRESPONDENCE.

The Editor is not responsible for, neither does he necessarily agree with, the views taken by correspondents. Both sides of any topic are given equal publicity. A pen-name or initials can be given for publication, but the writer's full name and address must always be sent. All communications should be written on one side of the paper only.

FURTHER ADVOCACY OF THE 90 DEGREE TWIN.

As a matter of interest, would Mr. Meeson be good enough to explain the arrangement of his proposed double three-cylinder two-stroke with cylinders at 60 degrees and 90 degrees?

This multiplication of cylinders idea with which many are infected seems to me wrong. A very smooth torque is obtained, but a steam turbine or an electric motor would be better still. The car world want up to 12 cylinders, but has decided that fours make the best power units with sixes as the upper limit in luxury. Yet their engines average two to three times the size of motorcycle engines. They could have 18-cylinder engines if desired, but there are limits to everything. From 1000 to 1200 c.c. it is by no means decided that a four-cylinder engine is a better proposition than a twin, even for the luxury trade.

Similarly, motorcycles have progressed from singles to fours, but twins are generally recognized to be the most suitable for the market. Apart from the lesser wealth of motorcyclists as a class, there is the consideration of the best size of a cylinder, and 250 c.c. seems to me to be below the limit. Why do not those people who call for a four-cylinder motorcycle use a Scott twin two-stroke? The smoothness of torque and petrol consumption are the same, and the performance with a sidecar is remarkable for its size.

Very significant is the decision of a motor agent of my acquaintance. He is buying a four-cylinder for himself in order to introduce fours to his district, in the expectation that the annual overhauls at least will be handed to him. As I said before, a four-cylinder motorcycle would be for the average man a garage job, with costs in proportion.

Why Not Employ Youths Behind the Lines?

I am still some months off my seventeenth birthday, but as I am 5 ft. 11 ins. in height and in the pink of condition, thanks to athletic training in a public school, I am frequently encountering the interrogative glance because I am not in khaki. Surely there must be work in France for me and many others so placed?

YOUNGSTER.
Newport, Mon.

Young Motor Volunteers Want the Real Thing.

We have been reading with interest the correspondence in MOTOR CYCLING with regard to the utilization of the services of boys between 16 and 18 years for motor-cycling work in England or behind the lines on the various fronts.

It remains to settle which is the best type of twin for motorcycles. The 40 degree to 60 degree V-twins should be dropped as rapidly as circumstances permit, for an enlightened public will have none of them. As we have seen, the war has served to perpetuate pre-war mistakes, for obvious reasons. Forty degree to 60 degree twins have neither smooth torque nor good balance, and the best that can be said of them is that they are better than singles in large sizes. The only angle for V-twins is 90 degrees, which gives perfect balance. Also long strokes suit 90 degree twins and fours, but they make big singles too tall and horizontal twins too long.

Mr. Meeson evidently uses a very good horizontal twin and he has tried some inferior 90 degree twins. However good the balance of a horizontal twin may be, the balance of a 90 degree twin with forked connecting rods can be better, unless the former has three cranks. I would here quote an important remark by "Right Angle":—"There are not many 90 degree twins in use to-day. Any that are about are of early design and do not give a proper impression of what a well-designed up-to-date 90 degree engine is."

Personally, I think "Jay Gee" has chosen the right engine for his next mount. He evidently requires it for specially hard work, and that is where the

V-engine scores over the horizontal one. His energy, perseverance, and enthusiasm must be remarkably great (both wishbone and backbone must be strongly developed), and I congratulate him on his humorous description. Perhaps he would oblige with a few particulars of saddle height, wheelbase, weight and cost.

W. R. DECHAR.
London, W. 1.

There is, no doubt, a lot of useful work to be done in the way of despatch riding which could well be done by boys of the above ages. We are sure that you would get enthusiastic support if this suggestion were acted upon by the authorities. We can assure you that we should be two of the first to join. One of us is in the Motor Volunteers, and we cannot see why he should not be admitted into the regular Army for work at home or behind the lines. He is accustomed to driving a car.

We wish your paper every success.

LAURENCE J. HESSEY.
HENRY BELL.

Victoria, London, S.W. 1.

Correspondence (contd.).

Asking to be Used.

I notice that in recent issues of *MOTOR CYCLING* four young correspondents ask if it is not possible for boys to drive for the R.A.F. I am of the necessary age myself, and should only be too glad to do something of the sort.

There are plenty of youths who can drive quite as well as some of the men one sees driving lorries, tenders and motorcycles. As for hardship, we can stand that as well as some of the men who are in the Army.

I am quite aware of the fact that there are openings for boy mechanics and clerks, but these only seem to occur occasionally.

R. PEARCE.

117, Bromley Street, Sheffield.

The British or American Controversy.

Mr. Fair Returns to the Fray.

I have read Mr. Houlding's recent letter with interest, but do not agree that removing the whole engine from the frame is nearly so simple as "wangling" the most obstinate cylinder off. "G.T.M." obviates trouble of any kind by using liquid decarbonizer, but this does not reach the carbon underneath the piston heads.

I do not think the reason why the Yanks use P. and M.s is that having the cylinder part of the frame is good construction but that it is a good all-round machine. I have not had practical experience with the P. and M., but it seems to me that cylinder removal would be much easier on this machine than on the average Yank.

I read the letters from "Matador" and the "Three Australians." The former specifies a machine on distinctly British lines for service riding, and as conditions on service are extremely exacting I think this is a very great tribute to the Britisher. The "Three Australians" mention springing, but I consider the horizontally-opposed Matchless ahead of the Yankee in this respect. They also refer to hill-climbing, but they apparently compare the average 7.9 h.p. American machine with an overloaded 3 h.p. British single. I think our big twins fully as good climbers as the Yankee machines.

I once tried to re-time the magneto on an American twin, and after some hard work undoing 18 bolts I came to the conclusion that the British method of using two or four bolts for the same purpose would save much valuable time. Again, the contact breaker cover could not be removed without removing the forward chain cover, the attachments of which were apparently designed to give as much work as possible to the owner.

I am looking forward to the time when the good points of the American machine, twist-grips (for their adherents), and larger wheels and tyres are incorporated with British simplicity and durability, which is very marked, inasmuch that it is by no means uncommon to see 1905 machines in going order advertised in the columns of technical journals.

161, Windsor Road,

Ilford, Essex.

M. H. FAIR.

Another Criticism of Mr. Heather's "1920" Design.

Whilst there are several features in this design which, although being unconventional, are really excellent, to my mind it contains some disadvantages which cannot be overlooked.

I am going to endeavour to point out what, in my opinion, are some of the disadvantages in this design, and the alterations I would make.

Admittedly the cowling apparatus prevents oil from finding its way on to the rider, but, and it is a very big but, surely it must scoop in all the dust and dirt? Truly, I should not relish the job of cleaning Mr. Heather's engine after a long run! It would appear that this cowling apparatus would have to be discarded.

As the exhaust pipe only stretches as far as the gearbox, I fail to see how it is to silence the engine effectively. I am one of those cranks who like a machine to be as silent as possible in a town, and in the open country I should not object to the exhaust resembling that of an aeroplane; therefore give me a well-designed silencer of adequate dimensions and carry the exhaust pipe on as far as the rear hub. This should silence the engine effectively. For country work a cut-out could be usefully placed just on the engine side of the silencer.

I hesitate to criticise the propeller shaft member until a test of it has been made. To my mind, shaft drive on a motorcycle, at any rate up to the present time, has not been satisfactory, as the most minute adjustments have to be made to get this part to run silently, and the noise of an improperly adjusted propeller shaft is, to say the least, awful.

The only objection in the past to unenclosed chains was that they required frequent lubrication. In the design of a new four-cylinder machine I have in my mind, by an ingenious method all moving parts with the exception of the engine, clutch, gearbox and hubs, can be lubricated from the driver's seat while the engine is in motion. With this system chain drive should be perfectly satisfactory, as it could be oiled, say, every 100 miles without any trouble, and this excess of oil should make it unusually silent, at the same time keeping out dust and dirt. I am about to experiment with this system.

Regarding the throttle control, I should like to see Bowden wire entirely eliminated from motorcycle design. Why not a foot control as in car practice?

Then again, in connection with the front brake control, as I have said, do away with Bowden wire. I see no objection to a hand lever, which could advantageously be provided with a ratchet to hold in the rider's absence.

Given a sensible exhaust pipe design and a fool-proof oiling system the engine would be A1. Such a design with the above alterations is, to my mind, very nearly the ideal. The most noteworthy feature of the machine appears to be the clutch, which cannot fail to give lasting satisfaction, and on which I consider Mr. Heather is to be heartily congratulated.

LEONARD E. L. CALVERT.

Boston House, 63-64, New Broad Street, E.C.



The motor-cycling jumping craze has reached the States. The distance covered in this instance was 30 ft.



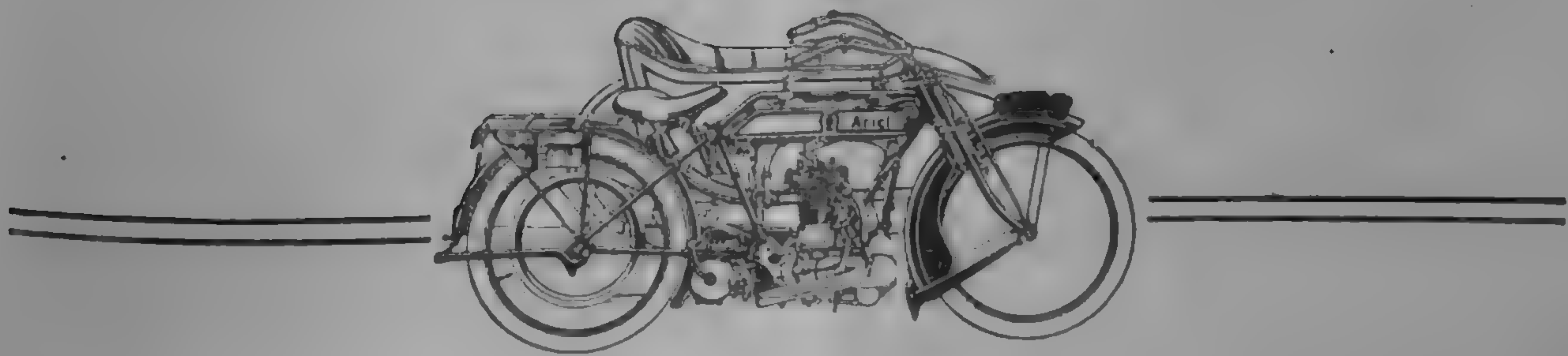
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—**JAMES,** 1917, 2½hp, 2-stroke, 2 speeds, lamps, and horn, £40. See below.

—**JAMES,** 1915, 4½hp combination, 3 speeds, clutch and kick-starter, all-chain drive, £60. See below.

—**ROYAL ENFIELD** combination, 1916, 6hp, lamps, horn and speedometer, £78. See below.

—**DOUGLAS,** 1910, 2½hp, lamps and horn, £15. See below.

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—**CALTHORPE,** 1915, 2½hp, 2-stroke, 2 speeds, lamps and horn, £27. See below.

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—**ALL** the above motorcycles are ready for immediate delivery and deferred payments can be arranged for any of them. Write for further particulars and list B. to the Eastern Garage Co., 418 Romford Rd., Forest Gate, E. 7. Telephone No., East Ham 490. T.A., "Egaraco, London" 463-111

BODIES.

—RENNOC MOTOR, SIDECAR and ENGINEERING WORKS, 68 Victoria Rd., Stroud Green, London, N. 4, are actual manufacturers. Also have few clearance and second-hand. 472-815

CARS, DUOCARS, TRI-CARS, TRICYCLES, Etc.

—RIDER TROWARD and CO., Car Dept., 31 High St., Hampstead, have always a good stock of sporting and light cars at attractive prices, full lists free. Present stock includes:—Bayard 9hp, Belsize 12hp, Briscoes 15.9, new and second-hand; Garden monocoers, G.N., Gregoire, Kendall, Isotta-Fraschini, Mercedes, Nordenfeldt, Phoenix, R.M.C., Sizaire-Naudin, Swift, Rover, Wolseley, Weigal, etc. 463-935

—MORGAN, guaranteed, 1914, No. 780, 2-seater, 8hp, twin, magneto, brand-new tyres, hood, screen, lamps, hooter, any trial, great bargain, 1 guinea, take combination part payment. Brown, 1 Ebner St., Wandsworth, S.W. 463-a351

—CYCLECARS. Anyone wishing to buy a new or second-hand cyclecar should refer to "The Light Car and Cyclecar," the journal of the new motor-ing, in which examples of all the best-known makes are offered for sale. "The Light Car and Cyclecar," 2d. weekly, 7-15 Rosebery Ave., London, E.C. 1. 422-324

EXCHANGE.

—IF you are wanting to do an exchange, send for our list of new and second-hand motorcycles. The North Wales Motor Exchange, Holt St., Wrexham. 222-298

—ANY make of motorcycle taken in part ex-change for light car; or light cars taken in ex-change for motorcycles. Service Co., 292 High Hol-born, W.C. 1. 222-377

—BEFORE deciding elsewhere, write for our full list of 200 motorcycles and cars, and ask for our quotation. Rider Troward and Co., 31 High St., Hampstead. 463-936

—LATEST £25 model large cabinet hornless gramophone, inlaid mahogany, as new; exchange for motorcycle. Box No. 4109, c/o "Motor Cycling." 463-a334

EXTENDED PAYMENTS.

—EXTENDED payments; all makes supplied; lowest terms. Service Co., 292 High Holborn, Lon-don. 222-641

INSURANCE.

—DREADNOUGHT motorcycle policies at Lloyd's. Premiums from £1 7s. 6d. per annum, payable monthly (fully insured on first payment). Before insuring elsewhere, write for prospectus, issued solely by Roys, Ltd., 199 Piccadilly, London. Tel., Regent 5878-9. 222-778

MAGNETOS.

—REPAIRS by manufacturers. Kenyon and Torrance, 399 St. Western St., Rusholme, Man-ches-ter, can now undertake magneto repairs accom-panied by Class A or B certificate. Same can re-ceive immediate attention, and be returned with-out delay. 465-969

—REPAIRS and spare parts. The Rumbaken Magneto Co., Ltd., Chestwood Lane, Derby St., Man-ches-ter. Telephone, 8286 (City 3 lines). Telegrams, "Runmag, Manchester." 222-347

MISCELLANEOUS.

—PHOTO. postcards of yourself, 1s. 3d. dozen; 12 by 10 enlargements, 5d.; gaslight postcards, 1s. 6d. 100. Plates cheap. Samples, catalogue free. B. E. Hackett, July Rd., Liverpool. 465-a69

5,000,000 NEW bright-steel engineers' hexagon bolts, nuts, studs, metal screws available; send 10s. for parcel of 250 assorted useful sizes, Whitworth, Metric, B.S.F., B.A. threads; guaranteed perfect goods; sent carriage paid. Write for full cata-logue, Palmer's Garage, Tooting. 467-655

—PAIR Indian wheels and tyres, 30 by 2½, first 20s. 1s Upper Hagley Rd., Birmingham. 463-a331

NEW & SECOND-HAND MOTOR CYCLES. MOTOR CLOTHING ACCESSORIES

Cash—Extended Payments—Exchange.
Send for List, stating requirements.

The Service Co
289-93 High Holborn

New Models —AT— GODFREY'S

INDIANS. 1915, 7 h.p., 2-speeds, com-plete with accessories. Brand new machines at special price, £80 cash. Only a few left.

NEW 1918 MODELS.

1 h.p. War Model MATCHLESS
Combination .. £125 0
5-8 h.p. JAMES Combination .. 104 0
8 h.p. JAMES twin solo model .. 79 0
4 h.p. JAMES, single-cylinder .. 79 0
3 h.p. ROVER .. 80 0

(All the above have 3-speed gears and kick-starters)

3 h.p. ROVER, T.T. model, with Phillson pulley .. £87 10
2 h.p. LEVIS, Model E, 2-stroke, 2-speed .. 47 10
2 h.p. LEVIS, Popular Model, 2-st. (Permits required) .. 32 0
2 h.p. DIAMOND, 2-st., single-sp. .. 31 10
2 h.p. DIAMOND, 2-stroke, with countershaft 2-speed gear .. 38 17
2 h.p. LEVIS, single-speed, belt-drive .. 36 15

Second-hand Machines and Combinations.

You can always rely on GODFREY'S.

Write for full Lists.

EXCHANGES. EASY TERMS.

GODFREY'S, Ltd.
208, Gt. Portland St.,
LONDON, W. 1.

Phone—7091 MAYFAIR (2 lines).

—12s. 6d. SECURES new 11 by 2½ beaded cover, new tube, 7s. 6d., sent approval, carriage paid, re-ceipt remittance. Palmer's Garage, Tooting. 467-656

—BANCROFTIAN CO. The most reliable and cheapest house in the United Kingdom.

—TYRES. Don't buy any until you have seen our special list of high-grade clearance tyres at less than half manufacturers' prices. In stock: Kempshall, Pedley, Clincher, Beldam, Hutchinson, Stelastie, Goodrich, etc. Tubes from 3s. 6d. Write for list at once. We have the largest stock of tyres in London.

—BELTING. Well-known make rubber, ¾, 1s. 4d. foot. We have also a few short lengths to clear.

—WATERPROOF overalls. Highest class at pre-war prices. List per return. Don't buy any until you have seen it.

—MAGNETOS in stock. Bosch, Dixie, etc. Re-pairs; spares at lowest price.

—CHAINS. ¾ by ¾ Renold's, 5 ft. lengths, £2 8s. 6d.; Coventry, £2 5s.; ¾ by 1½ Perry, 6s. 9d. foot; Coventry, 7s. 3d.; Renold's 8s. Above now, not laked; limited quantity. When sold, cannot repeat. Postage 6d. 2

—SPEEDOMETERS. Stewart, etc. We stock everything for motorists. Send your inquiries to us.

—CARBURETTORS. Brown-Marlow, 1917, abso-lutely new, not laked, complete, standard, heavy, 35s., usual 45s.; lightweight, 32s. 6d.; with pilot jet, variable, lightweight, 35s.

—XL-ALL saddles, largest, brand new, 35s., usual 45s.

—BANCROFTIAN CO., 61 Bishopsgate, London, E.C. 2. A. "Chukel, London." Tel. No. 9897 Lon-don Wall. 222-167

—PULLEYS for any motor, fixed 7s. 6d., adjust-able 14s., plated, guaranteed carriage paid. Per-kins and Son, 455 High Rd., Leyton. Phone, 218 Walthamstow. 468-96

—A.J.S. spares, prompt delivery. A.J.S. Agent, Cyril Williams, B Dept., Chapel Ash Depot, Wol-verhampton. 462-91

—ORTO windcreens, 4 patterns, from 33s.; Orto hoods and aprons, guaranteed waterproof, lists gratis. Atkinson's, 306 Uxbridge Rd., W. 474-a328

—FLINTS for lighters, 1s. 6d. dozen, 15s. 6d. gross; wicks, springs, screws, 9d. dozen; samples of each, 1s.; postage 1½d. Peacock, 27a Yerbury Rd., Holloway, London. 463-a332

—20 NEW motor wheels, with belt rims, 26 by 2½, and 2½, clear 16s. each. 15 Upper Hagley Rd., Birmingham. 463-a333

—JONES'S GARAGE can supply from actual stock practically all spare parts for Douglas, in-cluding cylinders, pistons, piston rings, cam wheels, exhaust rockers, 5s. 6d. each; big-end bolts and nuts, 1s.; inlet valve rockers, 5s. 6d.; valves, valve springs, flywheel sprockets, connecting rods, bushes, cam wheel studs, crankshaft timing pinions, intermediate wheels, magneto wheels, lay-shafts, screwed sleeves, plain sleeves, mainshafts, 2-speed only, pulley wheels, ball bearings for en-gine and gearboxes; in fact, we have practically anything for Douglas 2½hp and a few sundries for 1hp; also J.A.P. 6 and 8hp spares, cylinders, gud-geon pins, piston rings, cam wheels, crank pins, gear shafts, pulley shafts, bushes, connecting rods, plain bearings and ball bearings.

—ENFIELD 3hp cylinders, pistons, rings, gud-geon pins, connecting rods, also a vast amount of frame spares for 3, 6 and 8hp carriers, 3hp silen-cers, rear stands, 3hp frames, 6hp front wheel, brake rims, tanks, etc., etc.

—B.S.A. 3½ and 4½hp valves, cylinders, pistons, rings, cam wheels, crank pins, bushes, etc.

—ARIEL, all 3½ and 6hp engine spares and gear-box spares.

—TRIUMPH pistons, rings, connecting rods, cam wheels, bushes, crank pins, pulley spindles, gud-geon pins, ball bearings, valves, engine pulleys, valve rockers tappets and guides, valve caps, filler caps for petrol and oil tank, etc.

—PREMIER pistons, complete 3½hp, 35s.; valves, 6s. 6d.; a large amount of frame spares from 1913 upwards, wheel cones, etc.; a few Sunbeam, Har-ley, Indian, A.J.S. valves, and other spares. Let us know your requirements; stamp for reply.

—COVENTRY-PREMIER free-engine hub, com-plete with controls and pulley wheel, brand new, £5 5s.; 3½hp Arno engine, complete with mag-neto, carburettor, silencer, etc., £10 10s.; frame complete, less back wheel, suit 3½hp engine, with David front forks and front wheel, £6; Bowden wire inner and outer, 4d. and 8d. ft.; Lodge plugs, 4s.; Sphinx, 3s. 6d.

—TRIUMPH tool rolls complete, 27s. 6d.

—ENFIELD tool rolls complete, 25s.

—DOUGLAS tool rolls complete, 22s. 6d.

—HEAR Rex cylinder, 1911, perfect, 30s.; second-hand Douglas carburettors, from 10s.; lightweight A.M.A.C., 17s. 6d.; 5-16 ball bearings, 4d. dozen; P. and M. gear rings, 25s. each; Cowey speedometer, £5; Stewart speedometer, £1 10s.; ball races, all sizes in stock; Rudge front mudguard side valance, new, £1; Rudge footrest, complete, new, T.T. type, 25s.

—RENOOLD'S chains, ¾ by 1½, brand new, 6s. 6d. ft.; Premier crankcase, £2; cyclecar radiator for Ranger cyclecar, perfect, £2 10s.; pair Douglas 1914 2½ cylinders, second-hand, perfect, 35s.; several 1911 Douglas second-hand parts for dispos-al, cheap; Premier timing side flywheel, 3½hp, perfect, £1; several Douglas second-hand 2½ crank-cases, 35s. pair; 1½hp Minerva crankcase, 15s.; several cane and wicker sidecars from £4; 15-guinea Chemico vulcanizer, as new, £6 10s.; car-riage paid. Broadway, Muswell Hill, London. 463-917

—SET cranks, spindle, chain wheel and cog off Douglas, 10s. 6d. lot. 11 Pretoria Ave., Waltham-stow. 463-a336

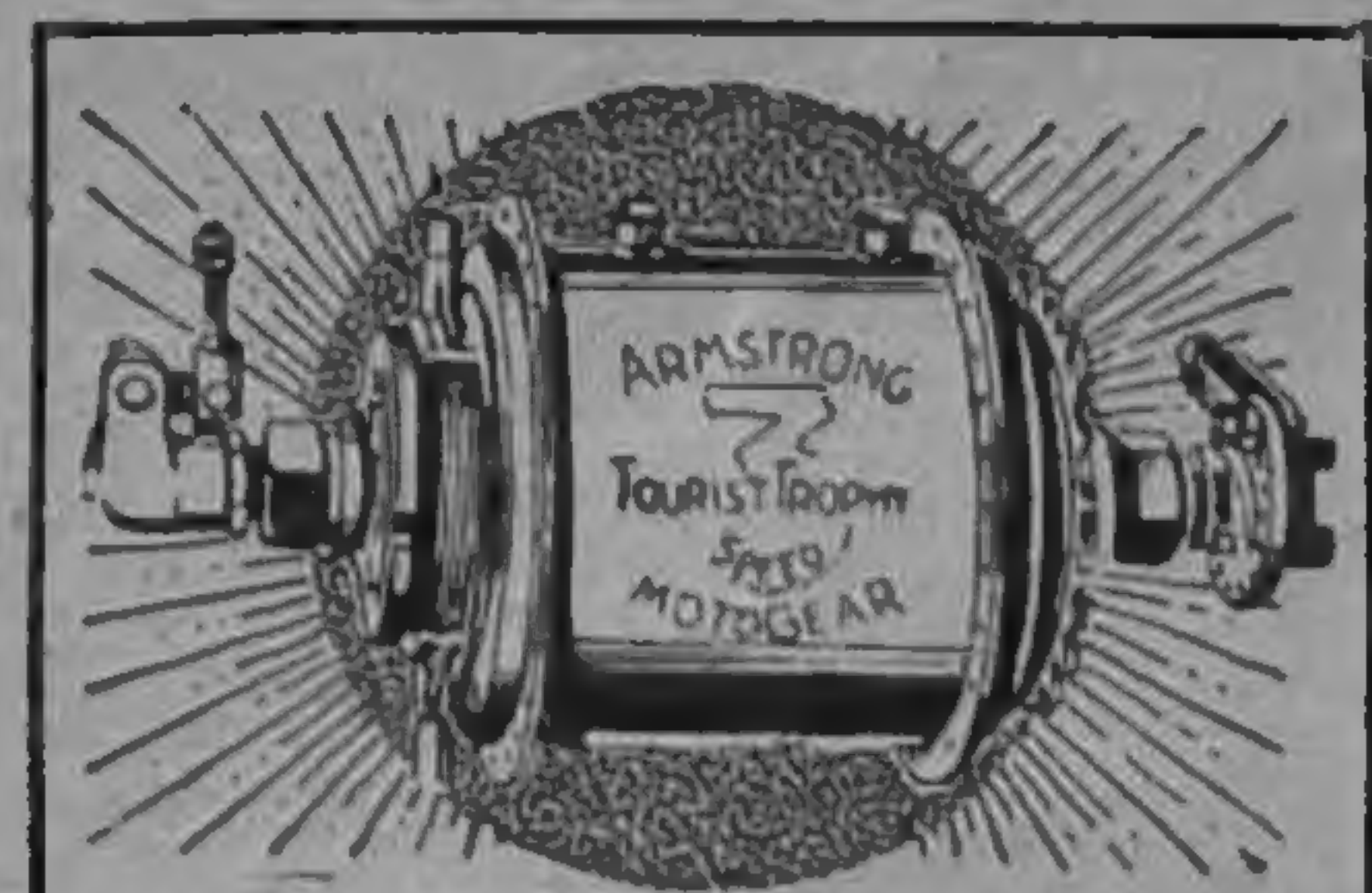
—NO need for petrol. A simple home-made de-vice enables excellent running from recently-inves-tigated solid fuel, for which no licence is required; advertiser has thoroughly tested this method since February last and will forward full instructions, with photos of machines now running, on receipt of postal order value 10s. Engineer, 5 Whittington Ave., E.C. 3. 463-a355

PATENT AGENTS.

—ADVICE and handbook free. King's Patent Agency, Ltd., 165 Queen Victoria St., London. 222-650

REPAIRERS.

—C. R. FOSTER, of Leeds, regrets being unable to undertake any more repairs until further notice, owing to all available plant being engaged on war work. 222-497



STURMEY-ARCHER & ARMSTRONG GEARS
repaired immediately. Every part actually in stock.

WE repair gears thoroughly, and give a road test. Send wheels, clearly labelled, to Hounslow L.S.W. Railway Station.

COUNTY ENGINEERING Co.
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Phone: Hounslow 321. 'Grams': 'Threespeed, Hounslow.'

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The Famous House for Bargains in Motorcycles, Sidecar Outfits, Tradesmen's Carriers, Light Cars, etc. Cash, Credit, or Easy Terms.
Phone—Holt 5777. 9, Shoe Lane, Fleet Street, LONDON, E.C. Grams—"Opticars, London"

—CYLINDERS rebored, new pistons, rings and valves, broken cylinders and crankcases, acetylene welding, all parts machined. A. Pilkington and Co., 390 Lichfield Rd., Birmingham. 467-654

—RENNOC MOTOR, SIDECAR and ENGINEERING WORKS for frame, tank and sidecar repairs. All work under personal supervision of Mr. George Conner, 30 years' experience. Wheel discs a speciality, 16s. 6d. per wheel, fitted. 86 Victoria Rd., Stroud Green, N. 472-817

—NOTICE. Please note that, owing to a great depletion of staff, we have decided to discontinue hub gear repairs, and in consequence have disposed of our complete stock of hub gear parts to the Conuty Engineering Co., of Hounslow. Kindly note that we are still continuing to repair gear-boxes of all descriptions. Broadway, Muswell Hill. 222-856

—JONES'S GARAGE can repair and supply from stock 3-speed Sturmey-Archer countershaft gear parts at reasonable prices. Broadway, Muswell Hill. 222-857

—DOUGLAS. We hold the largest stock of spare parts for these engines. Engines thoroughly overhauled, re-assembled and despatched in 4 days. Estimates sent on same day of receiving engine. We guarantee to have work finished in time specified. If you are a business man, you will appreciate this. Every satisfaction given. Chandler, Payne and Williams, Motor Engineers, Hitchin. 222-883

—PISTON rings, high grade, low prices. Piston Rings, 30 Wigan Rd., Atherton. 475-2444

SIDE-CARS, SIDECAR BODIES, TRAILERS, Etc.

—RENNOC sidecars are manufactured at the Rennoc Motor, Sidecar and Engineering Works, 56 Victoria Rd., Stroud Green, London, N. 4.

—RENNOC sidecars are designed and manufactured under the personal supervision of Mr. George Conner, 14 years manager to the Phoenix Sidecar Co.

—RENNOC sidecars. We supply lugs, rims, spokes, upholstering material, tubing, springs and all fittings for any make sidecar.

—RENNOC sidecar bodies, hoods, screens, wheel discs, etc. Actual manufacturers, wholesale, retail and export.

—RENNOC sidecars. We specialize in frame repairs to motorcycles and sidecars, enamelling and plating.

—RENNOC sidecars. Special department for sidecar body repairs, repainting, upholstering, lining, etc. Get into communication with our Mr. Conner; it will pay you. 472-818

—BASTONE'S for sidecars and bodies at low prices. 228 Pentonville Rd., King's Cross, London, N. 1. Telephone, 2481 North. 463-922

SPARE PARTS.

—INDIAN spare parts (second-hand) for 1912 to 1915 7hp, and 1916 to 1913 5hp; frames, front forks, front and rear wheels complete with tyres, T.T. and touring handlebars complete with twist-grip controls, crankcases, flywheels, cylinders, cylinder heads, pistons, valves, carburettors, engine and rear wheel sprockets, tyres, silencers, exhaust pipes, petrol and oil tanks, magneto, saddles, Euk starter, etc., and engine complete with magneto. State your requirements, mentioning power and date of machine. Alexander and Co., 113-115 Lothian Rd., Edinburgh. 463-880

—A.J.S. spares and repairs. Sole London and district agents, H. Taylor and Co., Ltd., Store St., W.C. 222-355

SPARE PARTS—WANTED.

—THE Editor of "The Commercial Motor" will be pleased to be advised of any stocks of old type or obsolete commercial-vehicle spare parts, as well as of spares for those touring-car models which are commonly used for conversion to delivery vans, etc. Particulars should state types and principal parts available, and these will be included in the Spare Parts Bureau list published regularly in the editorial columns of "The Commercial Motor." Letters should be marked "Spare Part," and addressed to The Editor, "Commercial Motor," 7 Rosebery Ave., E.C. 222-73

TANKS.

—TANKS of every description; repairs, re-enamelling. Write for booklet. Green, Water St., Blackfriars, Manchester. 489-836

TYRES AND TUBES.

—TYRES. See Lancashire advertisement under "Miscellaneous." 222-8

—ELITE RUBBER CO. LD. We have the following special clearance lines in motorcycle covers, belts, tubes, etc. These goods are quite new. Any article sent on seven days' approval against remittance. A 3s. outfit sent free of charge to all purchasers of covers and tubes, as advertised, on orders exceeding £1.

—ELITE. by 3 Clincher heavy de luxe, 28s. 6d., listed 38s.

—ELITE. Bates No. 1 special heavy, 26 by 2 1/4, 30s., listed 50s. 6d.; 26 by 2 3/8, oversized, for 2 1/4 rim, 35s., listed 53s. 6d.; 28 by 3, 50s., listed 72s. 6d.

—ELITE. Pedley, extra heavy, 3-ribbed, 26 by 2 3/8, oversized, for 2 1/4 rim, 30s., listed 55s.

—ELITE. Kempshall heavy non-skid, 26 by 2 1/4, 45s., listed 63s. 3d., very special line.

—ELITE. Special offer, Goodyear diamond rubber-studded, 26 by 2, 26 by 2 1/2, to fit 2 1/4 rim, 26 by 2 1/2 rim, and 650 by 65 voltinette. Please write for quotation.

—ELITE. Best quality inner tubes, fully guaranteed, 26 by 2, 6s.; 26 by 2 1/4, 7s.; 26 by 2 3/8, 8s. 6d.; 26 by 2 1/2, 8s. 6d.; 26 by 3, 9s. 6d.; 28 by 3, 10s.; 650 by 65, 11s.; butted, 1s. 6d. extra.

—ELITE. Best quality belts, cannot advertise name, 6 ft. lengths by 1 in., 7s. 6d. each; 6 ft. 6 by 1 1/2 in., 6s. 9d. each.

—ELITE. Pedley belts, any length, 3/4-in. 1s. 6d., 7/8 in. 1s. 7d., 1-in. 1s. 11d.; 1 1/8 in. 2s. 3d.

—ELITE. Retreading. Extra heavy, 17s. 6d.; heavy, 15s.; medium, 12s. 6d. Time required, 7 days.

—ELITE RUBBER CO. LD. Head Office, 321-3 High Rd., Streatham, S.W. 16. Phone, Streatham 1167. Also at 266 Vauxhall Bridge Rd., Victoria, S.W. 1, 1 minute from Victoria Station. Phone, Victoria 6553. Please address all communications to Head Office, Streatham. 222-851

—BASTONE'S. New clearance covers and tubes. As below.

—BASTONE'S. 26 by 2 1/4, Pedley, heavy 3-ribbed, 25s.; Michelin Trident, 19s. 6d.; Kempshall heavy Anti-skid, 19s. 6d.; Shell, heavy, grooved, 15s.

—BASTONE'S. 26 by 2 1/4, Menley, rubber-studded, 17s. 6d.; Gaulois rubber non-skid, 18s. 6d.; heavy twin ribbed, 26s.; Michelin, 20s. 9d.; Shell, 18s. 6d.

—BASTONE'S. 26 by 2, Gaulois rubber non-skid, 15s.; Michelin, 9s. 6d.; Michelin steel-studded, 20s.; Shell, 12s. 6d.; heavy twin, ribbed, 22s.

—BASTONE'S. 28 by 3 Gaulois heavy rubber non-skid, 45s.

—BASTONE'S. New Michelin 1918 guaranteed tubes (not clearance), 26 by 1 3/4, 6s.; 26 by 2, 7s. 3d.; 26 by 2 1/4, 8s. 3d.; 26 by 2 1/2, 9s.; 28 by 2, 9s. 3d.; 26 by 2 3/8, 10s.; butted, 1s. 9d. extra: special clearance line, 26 by 2, butted, 5s. 6d. 228 Pentonville Rd., King's Cross, London, N. 1. Telephone, 2481 North. 463-923

TUITION.

—SIDECAR driving on P. and M.; ladies quickly made proficient for the R.F.C., etc. 41 Ashford Rd., Cricklewood. 164-a280

—MOTOR tuition. The British School of Motoring, Ltd., gives the highest standard of training in driving, mechanism and repairs for the lowest fees in England. Call or write for full particulars. The British School of Motoring, 5 Coventry St., Piccadilly Circus, W. P. and M. motorcycle instruction a speciality. 222-940

WINDSCREENS.

—RENNOC MOTOR, SIDECAR and ENGINEERING WORKS certainly lead in price, quality and design of hoods, screens, aprons, etc. 86 Victoria Rd., Stroud Green, N. 472-816

—ORTO windcreens. The most ingenious wind-screen ever designed. Vide Press notes. Orto-matic in action. Atkinson's, 306 Uxbridge Rd., W. 463-a229

WANTED.

—SEND your motorcycle to Palmer's Garage, Tooting, Wimbledon Station; cash offer will be telegraphed immediately on receipt of machine. Machine can be included in fortnightly auction without charge if offer not accepted. Reserve price may be fixed. Sole address, Palmer's Garage and Auction Rooms, 183-189 High St., Tooting. 222-715

—100 MOTORCYCLES wanted, spot cash paid; bring or send, Palmer's Garage, Tooting. 222-918

—WANTED, motorcycles, spot cash. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 467-a188

—WANTED, good up-to-date second hand accessories, state particulars and prices. Service Co., 292 High Holborn, London, W.C. 1. 222-378

—WE are buyers of motorcycles of the following makes not earlier than 1914: A.B.C., A.J.S., Brough, Enfield, Harley-Davidson, Henderson, Indian, Norton, Sunbeam, Triumph, Zenith, and other good makes. Write, giving particulars and prices, Service Co., 292 High Holborn, W.C. 1. 222-378

—A.B.C. or others, not earlier 1914, Carter, 17 Webster St., Greenheys, Manchester. 470-a128

—SEND your motorcycle or combination to Wandsworth Motor Exchange, Wandsworth (Nine Elms Station). Cash offer will be telegraphed immediately on receipt of machine; machine can be included in our sales; no charge if offer not accepted; many machines sold weekly. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). Phone, Battersea 327. 484-a197

—HARLEY-DAVIDSONS wanted for cash. Henry Nottbeck, 37 Turnham Green, W. 463-918

—MOTORCYCLES of any description, only modern, best cash prices wired on receipt. Rider Troward and Co., 31 High St., Hampstead. 463-937

—RIDER TROWARD and CO., 31, 40b and 78 High St., Hampstead, are open to sell on commission any modern motorcycle. Terms, 5 per cent. inclusive; no sale, no charge; free advertising, garage, cleaning, insurance and collection in London. 463-938

—THAT motorcycle you are storing, why not turn it into cash? Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 463-a353

—ANY motorcycle bought outright, spot cash paid on sight. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 463-a353

—WANTED, speed gear, N.S.U. preferred, also carburettor and coach-built sidecar. Particulars, prices, etc., 1 Gunnersbury Lane, Acton. 463-a345

—WANTED, motorcycle or combination. Fullst particulars, price, 1 Gunnersbury Lane, Acton, London. 463-a346

—WANTED, pair back forks for Rex frame, 1912 or 1911, for 2-speed Roc gear. Page, Little Itchen, Wellingborough. 464-a343

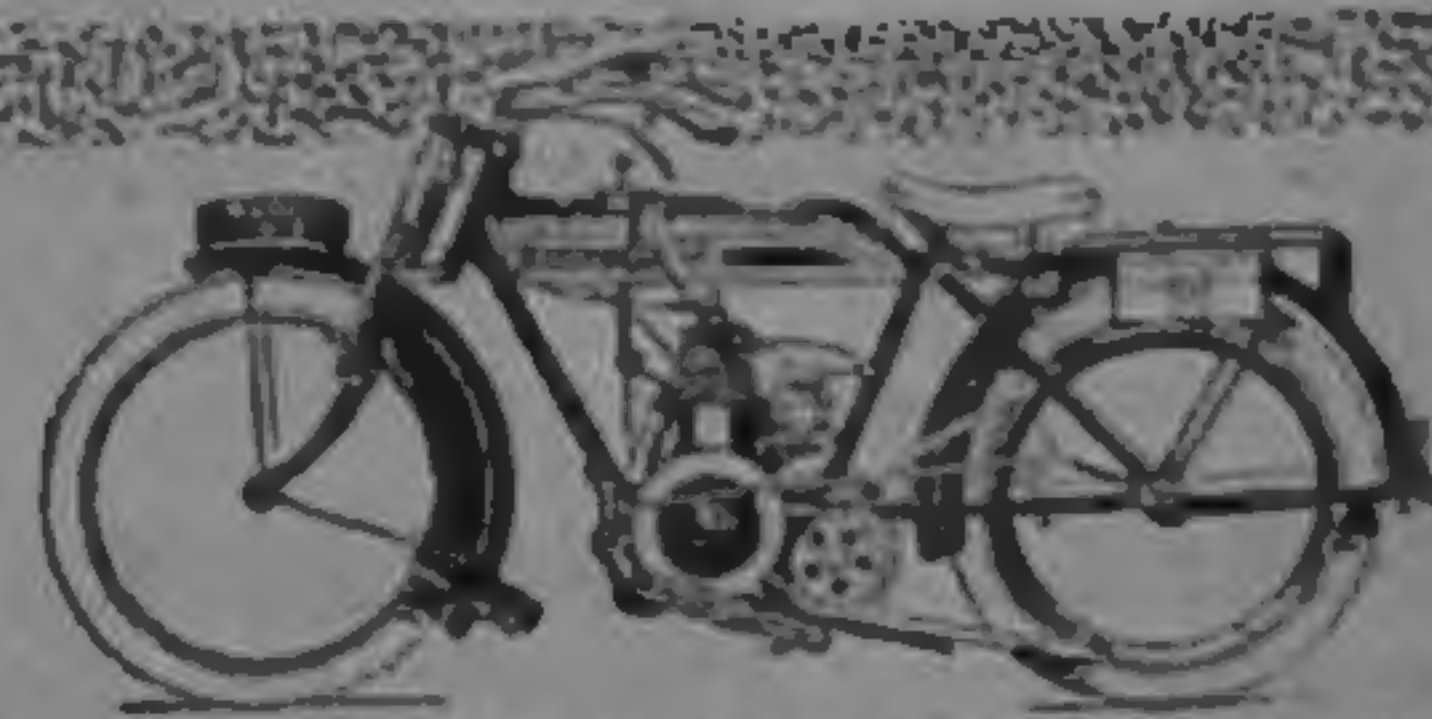
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KITCHENER MARCHING TO OMDURMAN, 1898.

Unchanging, mysterious, aloof—as when before its sightless eyes tramped the armies of an ancient World, gorgeous in purple and gold—the Sphinx stood steadfast while the winding column of Kitchener's Force marched to victory at Omdurman. So in the pageant of history have a hundred armies, the might of a hundred empires, marched and counter-marched while it alone remained, unmovable, unchanging — ever the same.

Apt emblem is the old Sphinx for Sphinx Plugs of to-day, world-famed for stern efficiency and lasting power. In every emergency, through every turn of fortune, Sphinx Plugs remain unchangeably the same—enduring—utterly reliable.

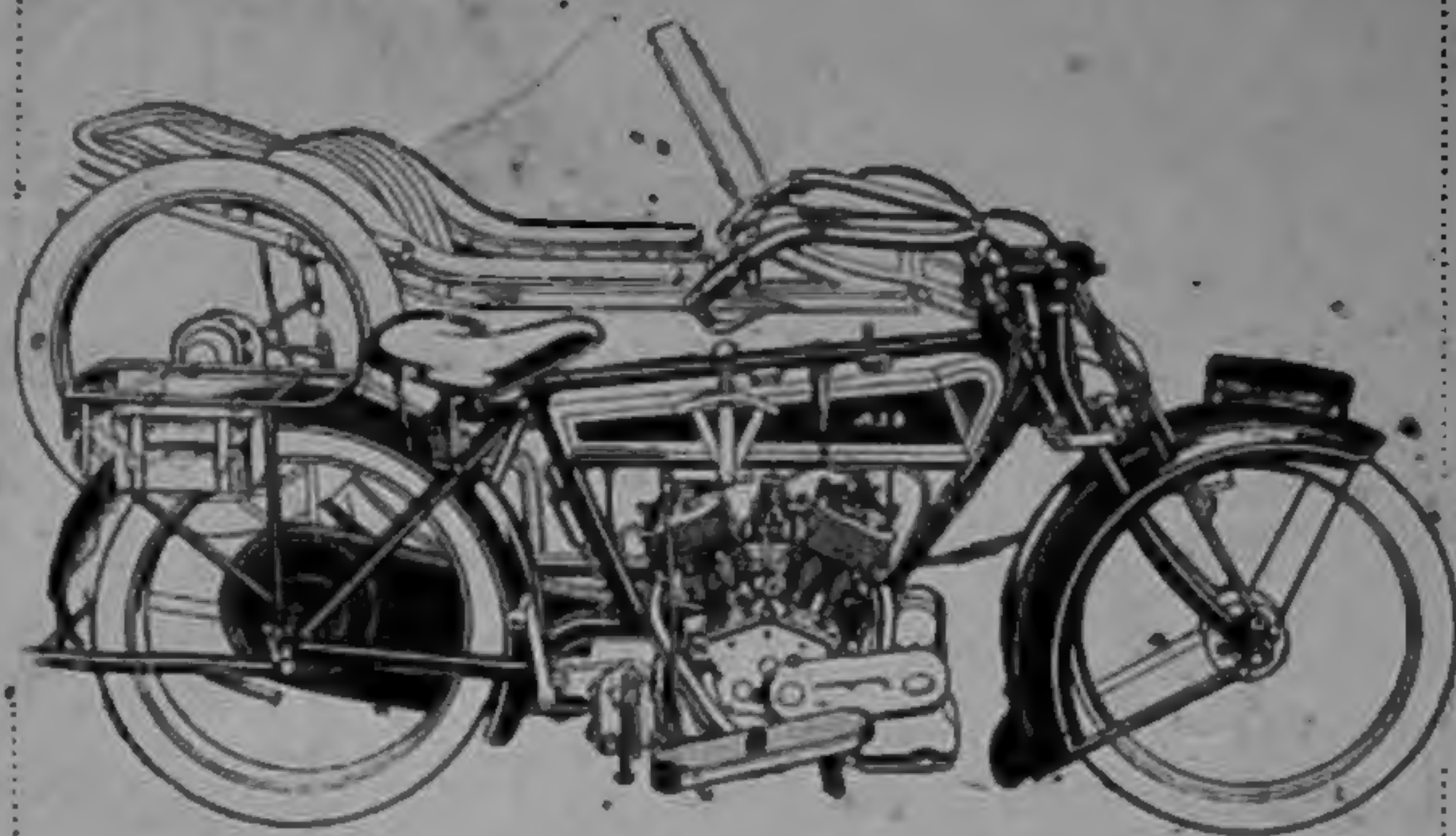
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SPHINX MANUFACTURING
COMPANY,
BIRMINGHAM.**

MARK C—25

*For hot motor-
cycle engines &
heavy transport
work*



**3/6
EACH.**



Present prices: Model D, 6 h.p. Twin, 750 c.c., 3 sp., £84. Sidecar to suit, £18 18s. Plus 10 per cent. increase. Hood, Windscreen, and Spare Wheel extra.

PAST INSPECTION of the A.J.S. emphasized to all the supreme point of excellence at which it had arrived, and betrayed the extreme accuracy and care bestowed in its manufacture. The fruits of future A.J.S. examination will more than endorse the wisdom of the many riders now waiting for it.

The A.J.S. exclusively embodies scientifically built straight tube frame; Powerful, silent, and vibrationless A.J.S. engine; All-enclosed weatherproof chain transmission; Kick-starter with enclosed mechanism; Special three-speed countershaft gear; Patent gate change; Handlebar-controlled perfect multiple plate clutch; Forced lubrication direct to main bearings and big ends; Internal expanding rear drum brake; Patent spring forks; Interchangeable detachable wheels; Ample protective mudguards; Weatherproof finish.

A.J.S.

Owing to our being fully engaged on supplying Government requirements, we regret our inability to accept orders for delivery at present, but suggest that you place your name on our "Waiting List" for our earliest possible attention.

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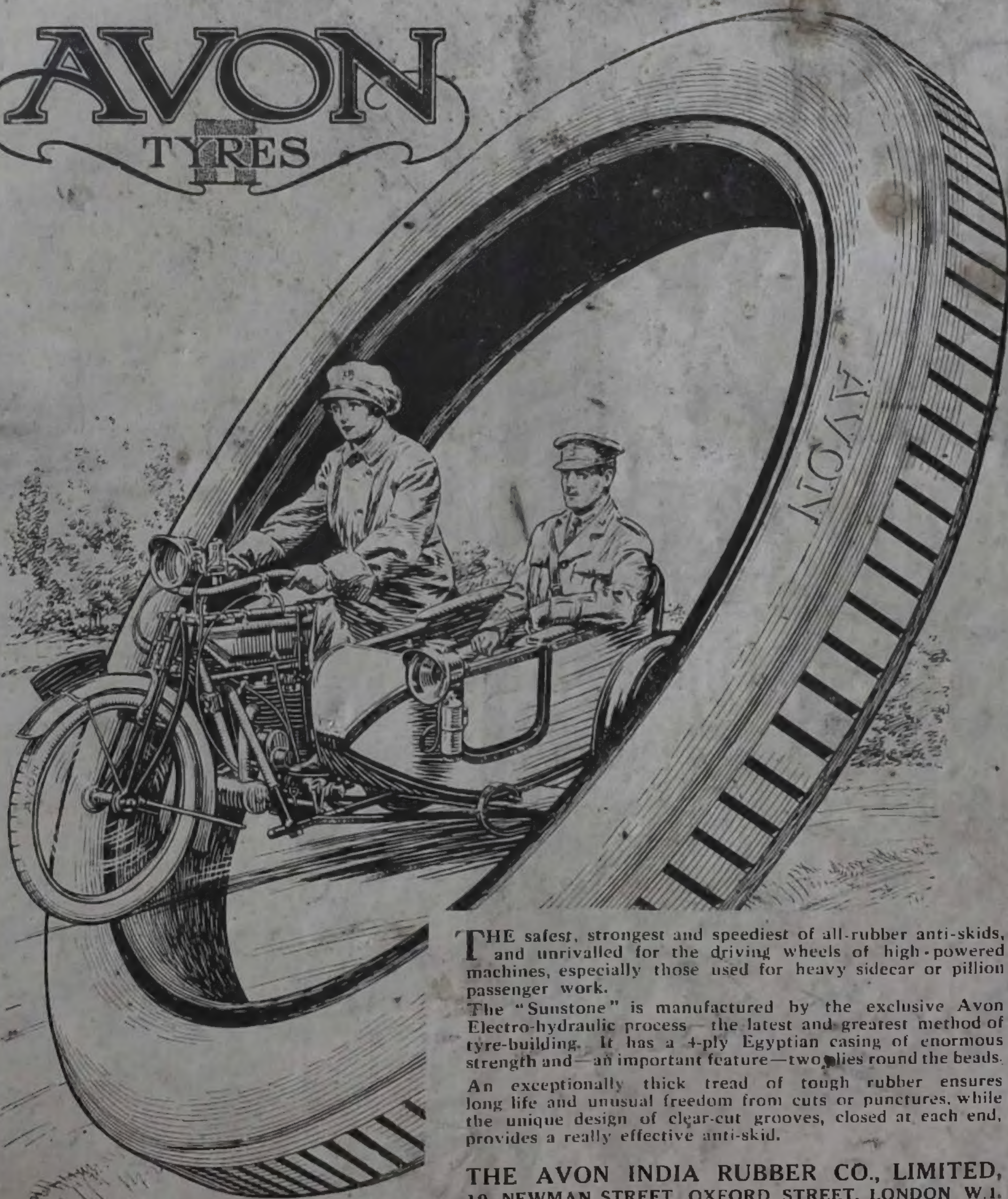
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THE safest, strongest and speediest of all-rubber anti-skids, and unrivalled for the driving wheels of high-powered machines, especially those used for heavy sidecar or pillion passenger work.

The "Sunstone" is manufactured by the exclusive Avon Electro-hydraulic process—the latest and greatest method of tyre-building. It has a 4-ply Egyptian casing of enormous strength and—an important feature—two plies round the beads.

An exceptionally thick tread of tough rubber ensures long life and unusual freedom from cuts or punctures, while the unique design of clear-cut grooves, closed at each end, provides a really effective anti-skid.

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